“Lei of Green” Revisiting the “Dream”

Design Model for a walkable greenway that sews Honolulu’s urban fabric together, overcoming gaps and separations caused by various barriers

Marisa T. Yamada
December 2013

Submitted Towards the fulfillment of the requirements for the Doctor of Architecture Degree

School of Architecture
University of Hawai’i at Manoa

Doctorate Project Committee
Joyce M, Noe, Chairperson
Brian Takahashi
Tom Dinell

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We certify that we have read this Doctorate Project and that, in our opinion, it is satisfactory in scope and quality in fulfillment as a Doctorate Project for the degree of Doctor of Architecture in the School of Architecture, University of Hawai'i at Mānoa.

Doctorate Project Committee

Joyce M. Noe, Chairperson

Brian Takahashi, Committee Member

Tom Dinell, Committee Member

ABSTRACT

The purpose of this project is to design walkable solutions for Honolulu, by overcoming gaps and separations caused by various transportation barriers that create dis-connectivity, with parks, beaches, landmarks, schools and communities. The research focuses on "building upon the shoulders of those who preceded us". Previous project visions will be used as the foundation to inspire new ideas and designs to solve Honolulu's "walkability" issues. The original "Lei of Green" design proposal created by the late Mr. Tom Papandrew, proposed design solutions and guidelines that promote walkability, recreation, safety and connectivity within an urban city. This doctorate project will be using Mr. Papandrew's idea and other past examples of work, related to the "Lei of Green", to create a stronger foundation of research, to support the design segment of this doctorate project.

This study is the outcome of five main areas of research: 1) studies on a previous bike proposal for O'ahu; 2) LEED – Neighborhood Development Criteria; 3) "The Image of the City" book written by Kevin Lynch; 4) Defining and finding the design criteria and benefits of both, Walkable Communities and Greenways; and 5) an interpretation of select case studies that embody both walkability and greenways. The result of all studies will shape the design benchmarks that will comprise the foundation for the final design proposal, of a sustainable walkable greenway system in Honolulu.

This greenway system will be used to connect parks, beaches, landmarks, schools and communities to each other, to promote alternative transportation means, safety, additional tourist attractions, preserve existing green spaces and to instill Hawai'i "sense of place" and cultural values that make Hawai'i a unique destination. This research will provide a basic understanding of a walkable greenway design to eliminate gaps and separations within a community that can be used to create a walkable city for Honolulu.

DOCTORATE STATEMENT

"*My objective is to create a greenway that sews Honolulu's urban fabric together, by overcoming gaps and separations caused by transportation barriers and connecting parks, beaches and landmarks through a string of bike and exercise paths, to create a walkable and healthy community*."

Hawai'i is a highly desirable place to live and vacation in the United States, because of its warm climate, blue skies and beautiful beaches. Honolulu has become a congested urban city with a density that increases with high-end condominiums, hotels and mixed use building projects that are constantly popping up along the Honolulu waterfront. Unfortunately, the increase of tourism and housing in Honolulu increases the number of cars on the road and traffic congestion, causing the Honolulu area, during rush hour, to be chaotic and hard to get around. Poorly maintained, unsafe conditions and dis-connectivity of Honolulu sidewalks and pathways make it difficult for people to walk to places, exercise and bike in the city. Meanwhile, Honolulu's parks have become spaces of misuse, crime, homelessness, and deteriorating facilities, losing their sense of place, connection and importance to the community. The continuous urbanization of Honolulu creates a growing need for more green and open spaces that are safe, clean, pedestrian-friendly, functional and walkable, as places of escape from the "hustle and bustle" of the city.

The purpose of this project is to create a walkable greenway that "Sews Honolulu's urban fabric together by overcoming gaps and separations caused by transportation barriers and connects parks, beaches and landmarks through a string of bike and exercise paths, creating walkable communities." This project, inspired by the late Mr. Tom Papandrew's "Lei of Green" proposal, promotes the following:

- Enhancing Health and Recreation
- Improving Pedestrian safety
- Bridging gaps caused by transportation barriers
- Creating Walkable Communities within Honolulu
- Finding Alternative ways of transportation
- Creating a sense of place
- Expanding education of the Hawaiian Culture

- Creating better access to Parks, Schools and Landmarks
- Beautifying Honolulu's Streets
- Boosting Hawai'i Tourism and Economy

Walkable Streets is an important factor in city planning. This factor is often overlooked and overshadowed by other city improvement projects, but, the true success of a city, lies within well designed sidewalks and walkable areas. The walkable community planning concept fits our island culture and climate as it promotes outdoor recreation and allows people to re-connect with nature. With the Rail Transit Project approaching us, there is an even greater need for better connectivity and accessibility to our shorelines, as the rail will create a barrier to our waterfronts. Creating a walkable greenway helps to bridge connections and accessibility points to our beaches, eliminating barriers from the city to the ocean. Hawai'i must strive to improve its tourist industry, to avoid becoming shabby, but, rather to increase visitor appeal for tourists. A sustainable, greenway connection of recreation, beaches, parks and landmarks in Honolulu, can boost the health and culture of its Hawaiian people and create another reason why Hawai'i should continue to be a major tourist destination.

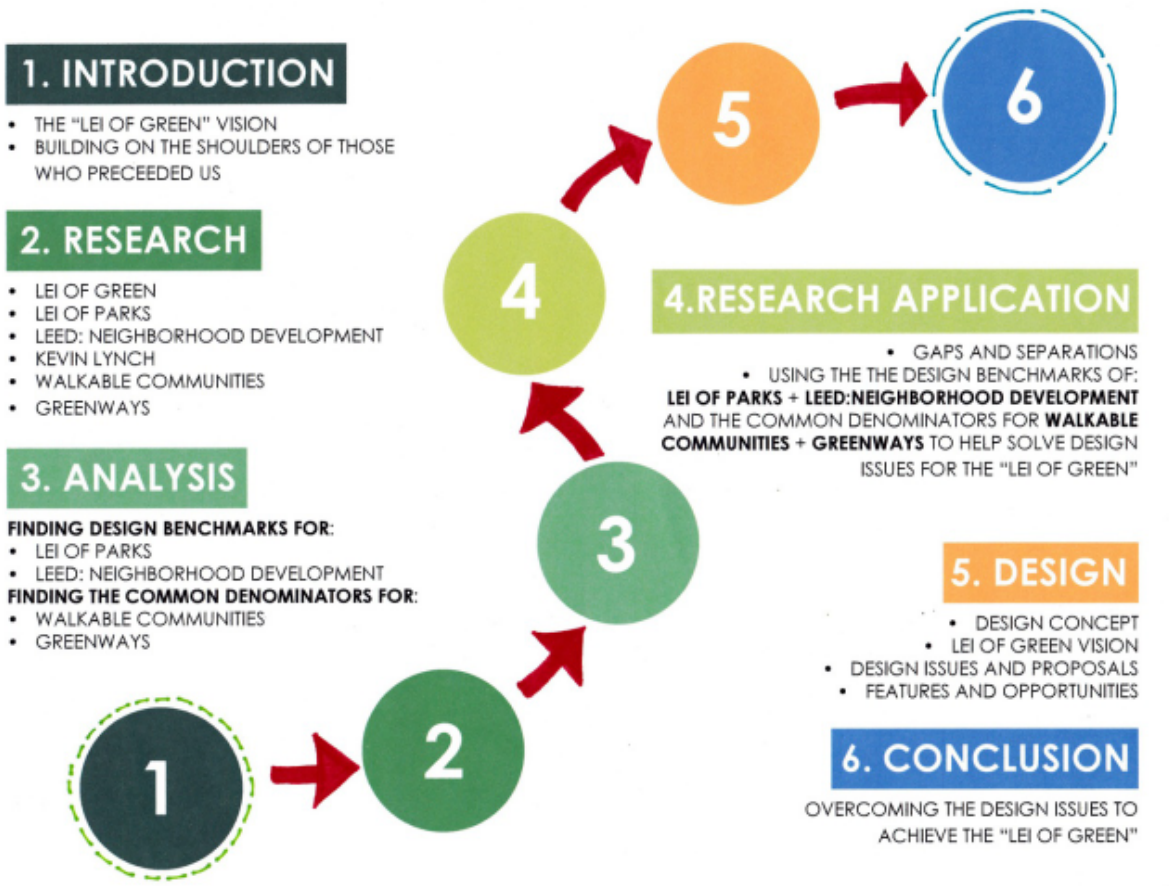
The "Lei of Green" parks will serve as health and fitness hubs, places with recreation, exercise facilities, restrooms and open spaces. Throughout the pathways, there will be designated spaces, that will allow for local farmer's markets and food truck businesses, to promote healthy eating choices, using Hawai'i-grown produce. Well-designed, information boards will be purposefully situated throughout the "Lei of Green", to educate people about Hawai'i's culture and history of significant landmarks. The pathways will also include conveniently placed, directional signage to help people navigate safely. Attention will focus on creating an exercise-walking greenway, that will connect parks and beaches to act as a solution in minimizing vehicular traffic and promoting alternative ways of transportation, such as walking and biking. The pathways will be planned for the benefit of local residents, as well as tourists, and will be an attraction that captures a sense of place. Art work of local artist's contemporary sculptures, paintings, mosaic floor tile designs and crafts, will be displayed along the greenway. The "Lei of Green" will be a unique urban greenway for people all over the world, as well as residents, to experience Hawai'i's sense of place.

This doctoral project will review and build upon great ideas of the past that have ideas and visions, similar to this proposal. Using the work of others as a foundation, my own ideas and visions will be used to address important design issues proposed by the "Lei of Green". The LEED-Neighborhood Development will be researched in order to identify LEED Credits that could qualify within the "Lei of Green" proposal and design criteria. "The Image of the City" by Kevin Lynch will be analyzed as a foundation (using his five elements of what people perceive in a city) towards the visual interpretation in the design section of this doctorate project. The research summary will help to create design guidelines and design solutions for the current "Lei of Green" design issues.

This doctoral project will define the terms, walkable communities and greenway, which will be key components in developing design guidelines and result in a design proposal for a successful, multi functional, safe and walkable greenway for Honolulu. This doctorate project will provide analyses of different places around the world that have successfully implemented greenways into their city's urbanscape. These case studies will be the basis for criteria and guidelines that will be used to design the "Lei of Green". The research involved with this project will offer clarity towards finding a way to develop a greenway plan that will connect Ala Moana Beach Park to Aloha Tower, Ala Wai Park, the University of Hawai'i at Mānoa Campus, and Kapi'olani Park, and finally to the iconic Diamond Head trail with, safe, walkable, pedestrian friendly, urban greenway and bike paths. The research will help to provide a basic understanding of design in greenways that bridge gaps and separation in a community.

The "Lei of Green" will help to re-establish pride in Hawai'i's open spaces and to create accessible paths for city views, travel and exercise. The walkable greenway will help to preserve green spaces in Hawai'i, but also to preserve sense of place, cultural values and the unique, island lifestyle Hawai'i provides us. Designing revitalized walkable communities within Honolulu will create a sustainable environment, a successful economy and more importantly, it will greatly improve quality of life, allowing people of Hawai'i and tourists to enjoy a healthier lifestyle.

RESEARCH PROCESS



1. The research will focus on a wide range of topics that will form design guidelines and criteria for the "Lei of Green" design proposal. The beginning of the doctorate paper states the vision of the "Lei of Green," the "Dream" revisited.

2. The next segment is an accumulation of projects and topics that relate to the "Lei of Green" proposal, selected with the intention to build upon the shoulders of the people that came before us, and using these previous projects as foundations for the research. Using previous work from other professionals will help create an understanding of the doctorate project's direction, finding a starting point for the research. Researching the original "Lei of Green" concept created by the late Tom Papandrew, will develop the understanding of his vision for the "Lei of Green" concept in Honolulu. Looking at four other subjects and plans such as the "Lei of Parks" (Bicycle Plan for Honolulu), the National LEED in Neighborhood Development, Walkable

Communities, and Greenways will provide information and focus on design elements and important points that will be used in creating design criteria for the "Lei of Green" proposal. Kevin Lynch's book "Image of a City" will be used to organize and create effective visual interpretation and analysis of the "Lei of Green" proposal.

3. The subjects researched will be analyzed and extracted, to form a series of design guidelines that will guide the direction of the project and design of the doctorate project. The topics, Walkable Communities and Greenways, will be combined to form design guidelines to analyze the two Greenway Case Studies and the Personal Experience segments, found in the Appendix. The design guidelines taken from the "Lei of Parks", LEED: Neighborhood Development and their common denominators will also be used as design criteria in the design segment in solving design issues in the "Lei of Green."

4. The research application section will use the analysis of design benchmarks and common denominators and apply them to the existing parks and places of interest along the "Lei of Green." The work in this section will develop effective solutions for the affected areas that are featured along the "Lei of Green." The section will identify the design issues (gaps and separations) the "Lei of Green" will encounter due to transportation barriers and non-friendly, pedestrian walkways and design workable solutions for a well-connected, purposeful and successful "Lei of Green".

5. The design portion of the document will include drawing plans and graphics that will emphasize walkable design solutions for Honolulu. These design solutions will help to promote walkability, recreation, safety and connectivity within an urban city, just to name a few.

6. This last section will summarize the work and research on the issues facing the "Lei of Green" proposal and the end result will be a workable, walkable pathway design, based on the research and ideas of past subject matter experts and successful walkways in the U.S. "The Lei of Green" design proposal for this doctorate project will open the window of opportunity for future possibilities and discoveries.

CREATING A SENSE OF PLACE
CHALLENGES FOR THE "LEI OF GREEN" IMPLEMENTATION

What is "sense of place"? A general understanding of the phrase "sense of place" refers to the shared relationships between communities, cultures, and environments, both tangible and intangible.[1] In the Hawaiian culture "sense of place" is often expressed as a lifestyle rooted in familial relationship to the land and all its features.[2] The distinct sense of place many people experience in Hawaii attracts people from around the world, instills pride within the community, and evokes the Aloha Spirit. [3]

Growing up in Hawaii I have been closely tied to the ocean. Living my entire life on the windward side of Oahu, in the beach town of Kailua, I remember frequenting the local beaches many times each month. It was a family affair and the thing to do on our weekends when we were not in school or at the soccer and softball sports events. The beach was an important part of my childhood and still remains a big part of my life. As an adult, my passions besides art and architecture is playing soccer, hiking, long boarding, kayaking, exercising and being outdoors. Living in Hawai'i has offered me many opportunities to experience outdoor activities that kept me physically active and healthy and in tune with the climate and natural environment. This allowed me to develop a true appreciation and enjoyment of nature and sports. "Sense of place" is when I am anywhere along our shorelines, beaches and within our parks, where there is a connection with nature and culture. I believe that acquiring a Hawaiian "sense of place" is about experiencing what Hawai'i has to offer, and a good place to start is getting out in the sun and enjoying nature.

[1] Internet. "Hawaii Sense-of-Place Primer: Common Perspective for Hawaii's Airports." SustainableDOT-A. Created by: Department of Transportation- Airports Division and KYA Sustainability Studio Made: 2011. Page 11. Hidot.hawaii.gov
[2] Internet. "Hawaii Sense-of-Place Primer: Common Perspective for Hawaii's Airports." SustainableDOT-A. Created by: Department of Transportation- Airports Division and KYA Sustainability Studio Made: 2011. Page 11. Hidot.hawaii.gov
[3] Internet. "Hawaii Sense-of-Place Primer: Common Perspective for Hawaii's Airports." SustainableDOT-A. Created by: Department of Transportation- Airports Division and KYA Sustainability Studio Made: 2011. Page 11. Hidot.hawaii.gov

Unfortunately, in Hawai‘i the beach areas are a popular place to live and build. In Honolulu, there has been a surge of condominium and hotel developments that have popped up near the shorelines. Honolulu has become a heavily, urbanized city, filled with concrete, metal, glass, minimized views, increase of cars and pollution with limited green and few walking paths. Hawai‘i’s sense of place is slowly fading away with the urbanization of Honolulu. In the near future with the Honolulu Rail Project approaching, our streets, our access and relationship to the beaches and parks along the shoreline will be separated by the rail line. As Honolulu’s density continues to increase, the natural landscape of each area will disappear and Honolulu will begin to look like any other city in the U.S.

With the increase of housing development in Honolulu within the next decade, Hawai‘i will benefit from finding solutions by creating walkable streets and bringing nature back into the city. The “Hawaiian sense of place” is not only expressed through architecture, but will be nurtured through the natural environment, expressed through experiences, walkable streets and landscaping. I believe that bringing landscaping into the city will create a greater Hawaiian sense of place for Honolulu and should be priority of the city plans to improve our communities and to create a better balance with nature in the built environment. With that said I have a vision of a Lei of Green walkable greenway system that provides a Hawaiian sense of place experience while walking along the waterfront, enjoying views and taking in the amazing Hawaiian weather. Creating places where people can enjoy and be a part of nature is important in retaining the connection with the land, culture and people.

With tourism being a huge part of Hawai‘i’s economy, Hawai‘i constantly needs to find ways to keep tourists coming back to our islands. Architecture in Hawai‘i has geared itself towards creating more places for tourist to stay, enjoy and get the “Hawaiian feel”. When designing in Hawai‘i people should make sure to address the conditions of supporting “Hawaiian sense of place,” and be more culturally sensitive to our land, our people, our culture and environment. The “Lei of Green” is a design proposal that aspires to improve the environment, lessen pollution, and create healthy lifestyle for residents and visitors and find ways to create a greenway system that provides a unique pedestrian experience with that “Hawaiian sense of place” and spirit of Aloha.

THE "LEI OF GREEN" LESSON'S LEARNED
BUILDING ON THE SHOULDERS OF THOSE WHO CAME BEFORE US

The "Lei of Green" concept is the inspiration for this research project and design proposal. The "Lei of Green" is a popular term used in this urban planning profession when talking about creating walkable streets and open spaces in Honolulu. The late Tom Papandrew invented this term. He describes the concept as a lei of parks connected to each other by comfortable, safe paths that allows easier access to parks by foot or bike. Tom Papandrew was the Director of Planning for the Roman Catholic Church of Hawai'i; the Chairman emeritus of Belt Collins Hawai'i (successful Landscape Architecture firm); Instructor of Urban Planning at the University of Hawai'i and the former President of the American Society of Landscape Architects. Tom had a vision of creating this "Lei of Green" throughout Honolulu and wanted to make it a policy. Looking for plans of Tom's idea was a difficult process since Belt Collins, Tom's old work place, had not retained copies of Tom's old work. A previous colleague of Tom's, a Principal at Belt Collins, Mr. Mike Terry, explained that the "Lei of Green" idea was more of a policy than plans and diagrams of Honolulu drawn out with parks connected by paths. Since there was no solid evidence of diagrams and drawings, I decided to gear my doctorate project to take Tom's definition of the "Lei of Green" and create a design based on his vision.

Fortunately, during the later part of the research phase, I was able to contact Mrs. Willa Papandrew, wife of the late Tom Papandrew. Mrs. Papandrew sent an image that she found on Tom's old lap top, the last piece of evidence Tom's family could find of his "Lei of Green." The image showed a map of Honolulu and what seemed to be a pathway system that used existing streets. Places of interests and landmarks were identified with red nodes. Existing parks and potential parks were identified with green. It was not clear what the diagram was trying to show. However, it is evidence of Tom's "Lei of Green" idea. A week after Mrs. Papandrew's great find, Mr. Mike Terry from Belt Collins also found and emailed an old brochure of Tom Papandrew's "Lei of Green" vision. Parts of the brochure are shown below and the complete brochure is located in the Appendix. The brochure talked about Tom's concept, vision, and design for the "Lei of Green."

Rather than reinvent-the-wheel with this doctorate project, building upon the shoulders of those who preceded us will be the basis of the research and the inspiration for the design. Taking Tom Papandrew's idea of the "Lei of Green" and adding to his vision, using my own ideas and design is the goal of this doctorates research. Tom's "Lei of Green" will be the basis and inspiration for the design proposal and will help build a strong foundation for the research. The research for this doctorate project will include other examples of work related to the "Lei of Green" done by professionals in the past to create a stronger foundation of research that will then support the design segment of this doctorate project.

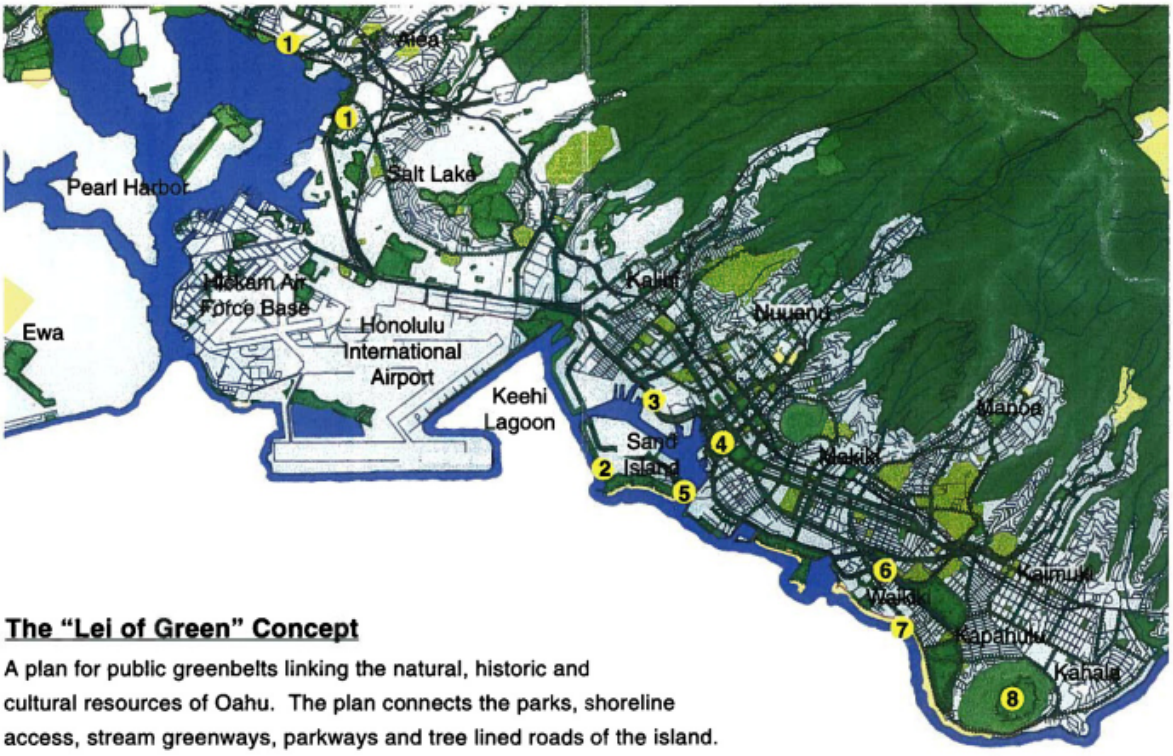
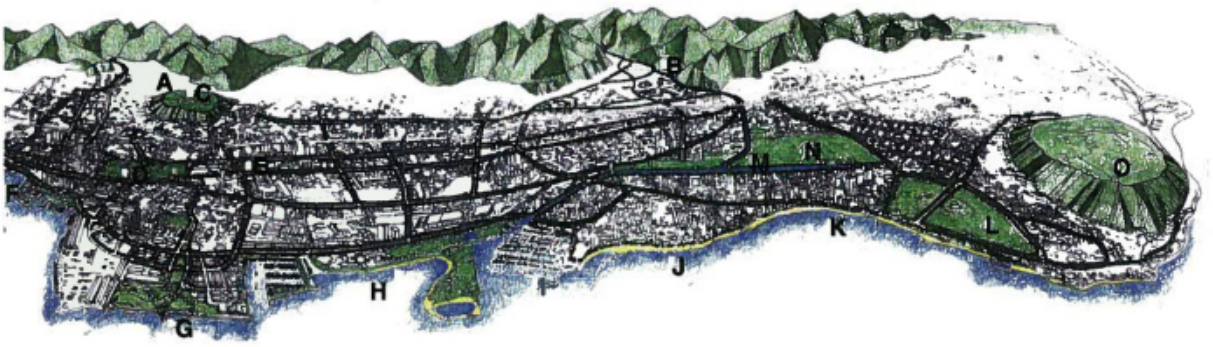


Image: Diagrams in Tom Papandrew's brochure "Lei of Green," showing map and concept statement of the "Lei of Green" Plan[4]

[4] Image. "Lei of Green." Hawai'i Chapter of the American Society of Landscape Architects.



LEGEND

A	Nuuanu Stream Greenways
B	Manoa and Palolo Stream Greenways
C	Memorial National Cemetary of the Pacific (Punchbowl)
D	Capitol District
E	Thomas Square
F	Nimitz Promenade (See Image #4)
G	Kakaako Waterfront Park
H	Ala Moana Beach Park
I	Ala Wai Yacht Harbor
J	Waikiki
K	Kuhio Beach Promenade (See Image #7)
L	Kapiolani Park, Waikiki
M	Ala Wai Promenade (See Image #6)
N	Ala Wai Golf Course
O	Diamond Head State Monument (See Image #8)

Image: Diagrams in Tom Papandrew's brochure "Lei of Green," showing a map of Honolulu[5]

Image: The image Mrs. Willa Papandrew sent of Tom's work on the "Lei of Green," showing nodes of places of interest, existing parks, potential parks and existing roadways in Honolulu.

[5] Image. "Lei of Green." Hawai'i Chapter of the American Society of Landscape Architects.

"LEI OF PARKS"

What is the "Lei of Parks"?

According to the Honolulu Clean Cities Website, the "Lei of Parks" is a system of paths and bike lanes linking the City's regional and local parks, as well as attractions. It is categorized as a multi-use network for different types of users (pedestrians, bicyclists, runners). The path will extend from Diamond Head to Aloha Tower and focus mainly on the urban areas of Honolulu. The "Lei of Parks will span 14.9 miles and include 24 separate segments. Once completed, it will attract tourist and residents. The "Lei or Parks" provides residents and visitors the opportunity to move between beautiful parks in a comfortable off-road setting. The "Lei of Parks" concept was developed by the Department of Transportation Services, Bicycle Advisory Committees, the City and County of Honolulu and Mayor Jeremy Harris Organization when they created the Honolulu Bicycle Master Plan in the 1990's.[6]

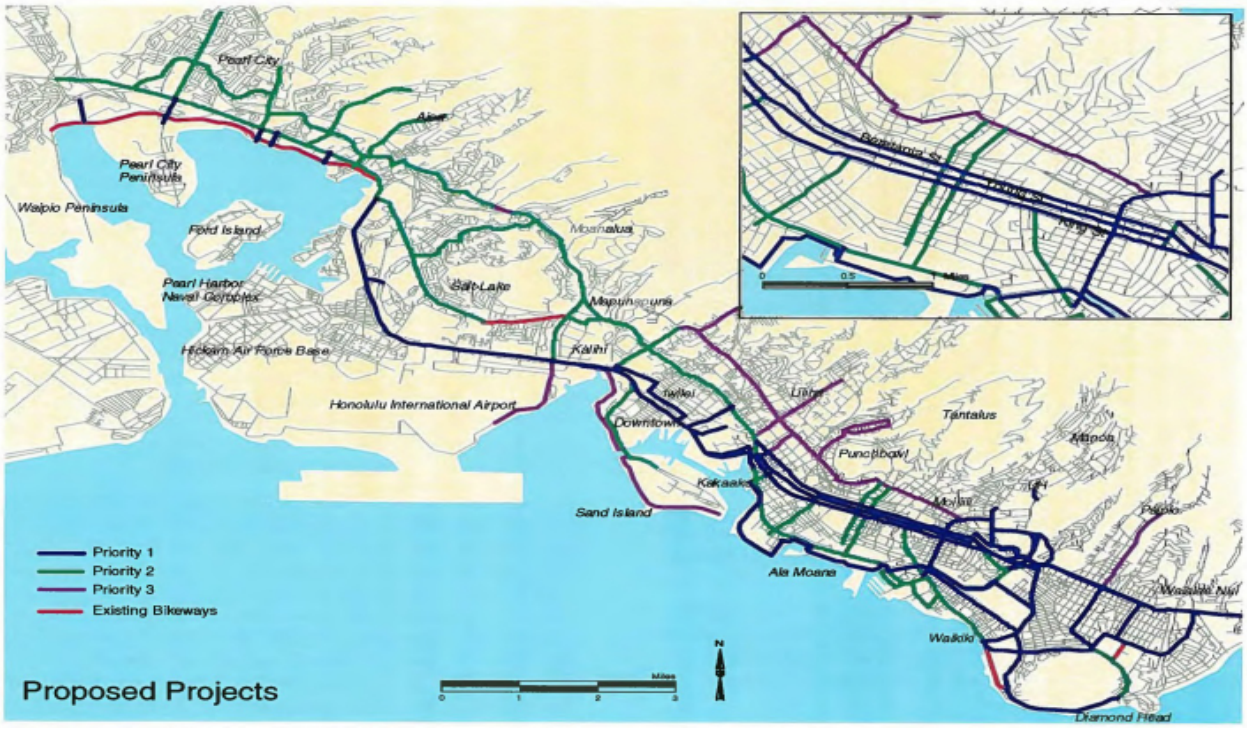


Image: Lei of Parks Master Plan showing existing bikeways and Priority 1, 2 and 3 Projects.[7]

[6] Internet. "Lei of Parks." Honolulu Clean Cities. The Twenty Ten Theme. WordPress.com. http://honolulucleancities.org/vmt-reduction/everything-bike/lei-of-parks/

[7] Internet. Image. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 13.

Image: Lei of Parks Master Plan showing Priority 1 and Priority 2 Projects [8]

In the Honolulu district, there are two parts that make up the "Lei of Parks" plan, Priority One Park links and Priority Two Park links. Priority One Park links provide a continuous route through the major parks and attractions that roughly extend 8.5 miles and includes 13 separate segments. Priority One Park links reflect upon the idea of this "Lei of Green" doctorate proposal and similar pathways and visions for Honolulu. Priority Two Park links complete the "Lei of Parks," providing access to the University and down through a return loop via Young Street and the State Capitol District. The Priority Park Two links reflect the ideas of this doctorate project in finding a connection to schools such as the University of Hawaii Mānoa and Kapi'olani Community College. The entire "Lei of Parks" spans 14.9 miles and includes 24 separate segments.

http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

[8] Internet. Image. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 19.
http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

The Honolulu Bicycle Master Plan booklet offers recommendations for the development of a regional network of roughly 100 miles of new bicycle routes that stretch from Kahala all the way to Pearl City. The recommended bikeways connect primary employment centers, commercial and recreational destinations with urban Honolulu's major residential areas. The routes are direct and continuous, important characteristics of popular bikeways.[9]

Researching the Honolulu Bicycle Master Plan and the "Lei of Parks" helped to understand the process people involved in the project had to undertake, in order to make an idea turn into a policy, as well as the content provided in the booklet that shares the design process. The Honolulu Bicycle Master Plan Booklet created in April 1999 by Helber Hastert & Fee, Planners, Bicycle Federation of America, Engineering Concepts, Inc. and David Cheever is a good resource that will be referenced throughout this doctorate research and design project.

Diagrams of the "Lei of Green" proposal and the Honolulu Bicycle Master Plan's "Lei of Parks" idea follow on the next few pages. Midway through the research of the "Lei of Parks" it was evident that both topics shared similarities in design and goals for Honolulu. For example, The Honolulu Bike Plan had similar ideas to the "Lei of Green" proposal such as using Ala Moana's inner road as a pathway, using parts of the Ala Wai Canal as a pathway and linking pathways from Ala Moana to Diamond Head. The similarities are evident in the diagrams. The "Lei of Parks" plan will be part of the foundation for the basis of the "Lei of Green" proposal.

[9] Internet. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 19-20. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

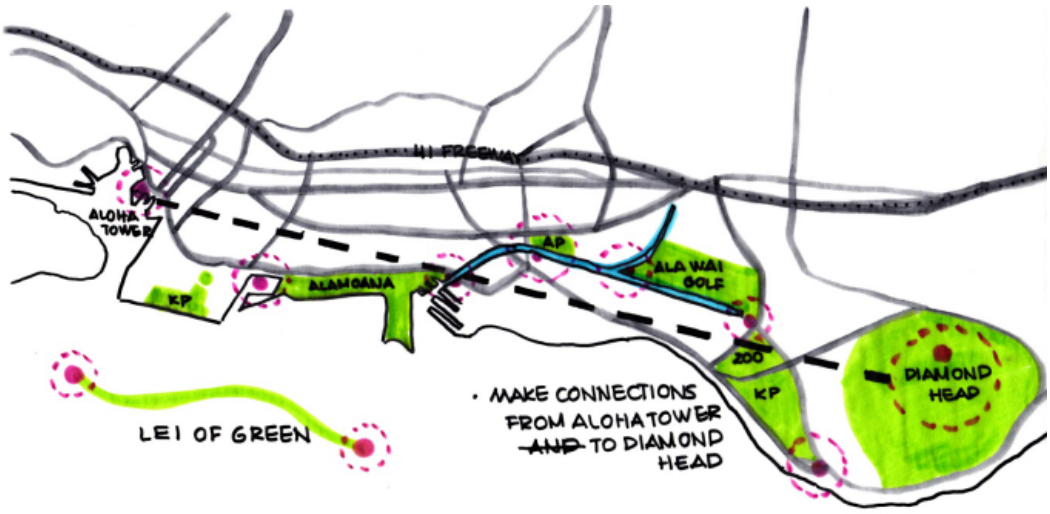


Image: Early conceptual drawings of the "Lei of Green."

Image: Conceptual diagram of the," Lei of Green."

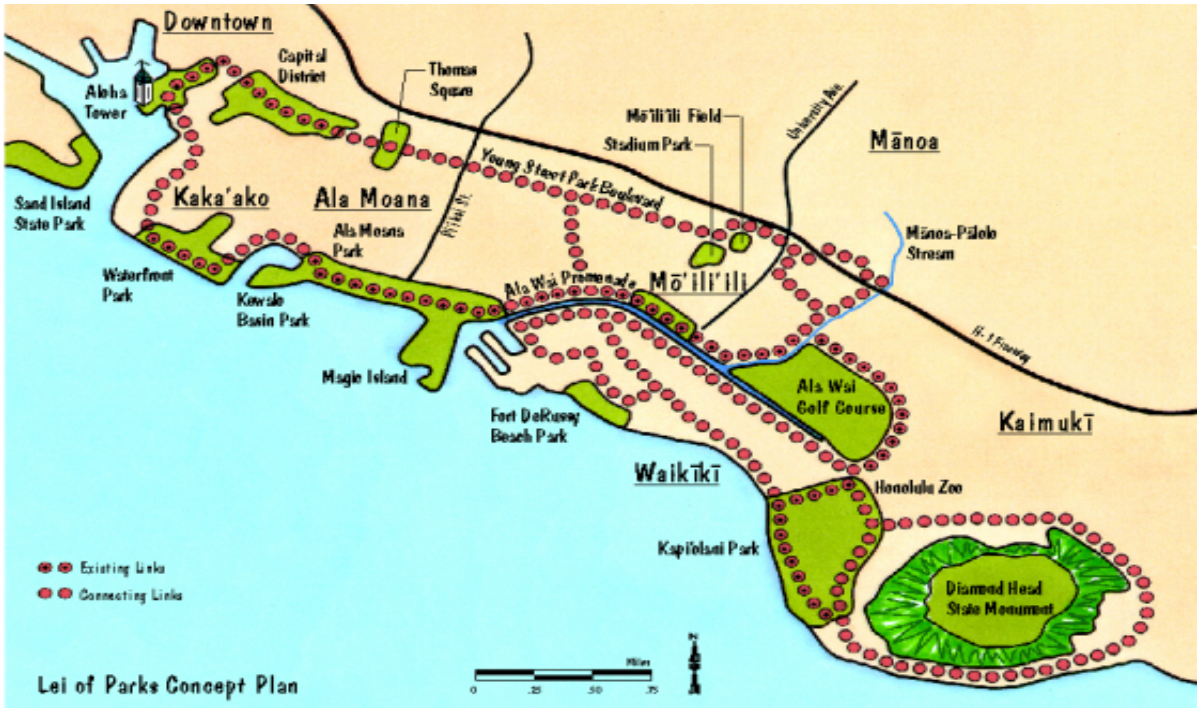


Image: "Lei of Parks" Concept Plan done by the State.[10]

The "Lei of Park's" initiative will help to form design ideas and benchmarks for the design segment of the doctorate thesis. The "Lei of Parks" gives beginning bicyclists, families and those who are looking for leisurely, scenic, and recreational activities, the opportunity to ride from Diamond Head to Aloha Tower. It provides a bicycle friendly linkage between the City's major regional parks and attractions including Diamond Head, Kapiʻolani park, Ala Moana Park, Kakaʻako Waterfront Park and Aloha Tower.[11] The "Lei of Green" proposal creates a recreational greenway that will connect and link regional parks, beaches and landmarks such as Diamond Head, Kapiʻolani Park, Ala Wai Park, Ala Moana and Kakaʻako, creating a couple of trails that leads to important places and caters to The University of UH Mānoa and Kapiʻolani Community College. The two main objectives from the "Lei of Parks," that the "Lei of Green" will use are to create a Bike Friendly Route for Honolulu bicyclists and create a college campus access for residents, students and tourists.

[10] Internet. Image. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 15. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

[11] Internet. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 4. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

Vision + Goal + Objectives

This section of the Honolulu Bicycle Master Plan talks about the twenty year vision when **Honolulu is a bicycle-friendly city where bicycling is a viable and popular travel choice for residents and visitors of all ages**.[12] This section is a good resource to contribute to a design criteria for a proposal of the "Lei of Green." The following are excerpts from the 20 year vision for Honolulu.

1. "Honolulu is a bicycle-friendly city…"

Bicycle-friendliness suggests a city where it is easy to ride a bicycle. Fear is not a factor when riding a bicycle in Honolulu because the roads are shared, bicycling is safe, and animosity between motorists and bicyclists does not exist.[13]

The intention of making a "Lei of Green" is not only to connect the gaps and separations caused by transportation barriers but to create safer pedestrian-friendly streets that are shared with bikers. "The Lei of Green" is a greenway proposal that will be separated from vehicular traffic, creating a safer route for walkers, bikers, joggers, strollers, and rollerbladers. Landscaped medians, temporary materials separating bikers/ pedestrians from vehicular traffic and paint indicating bike/ pedestrian lanes can help to transform a busy street into a safer, pedestrian-friendly environment that protects bikers and pedestrians from cars and giving them their own designated areas along a street.

[12] Internet. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 11. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

[13] Internet. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 11. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

2. "where bicycling is a viable…"

Viable indicates a bicycle system that is easily accessible. The bicycle network in Honolulu is a comprehensive and continuous one, making it convenient to fulfill a range of transportation needs.[14]

Creating a walkable greenway through Honolulu will be successful if it is accessible throughout the pathways. The "Lei of Green" uses existing main streets to connect to existing parks. These streets serve as access points to the "Lei of Green" and to parks and landmarks. The parks serve as a node and hub throughout the "Lei of Green" and places where people can park and jump on the path. Having the "Lei of Green" accessible to the public will bring more people onto the path. Accessibility must be convenient and comfortable for all types of users from bikers, to the handicapped, to mothers strolling their baby, or to young children walking to school.

3. " and popular…"

The word "popular" connotes social acceptance; not only is bicycling a viable choice, but lots of people are bicycling as well. It implies that people will use a bicycle for a variety of reasons; commuting, recreation, exercise, and other trip purposes.[15]

The "Lei of Green" is intended for all types of users and for a variety of reasons. A pedestrian could use the greenway as a way to get to school, to get to their daily exercise, to take the family for a fun day at the park, to practice for an upcoming marathon, to experience the Hawaiian outdoors, to visit landmarks and much more. This walkable greenway provides the people of Hawai'i and visitors a safe, useful, comfortable way of getting around town, without having to drive.

[14] Internet. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 11. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

[15] Internet. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 11. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

4. "travel choice…"

Bicycling is not the only way to get from one point to another. However, it is one of a variety of transportation modes that Honolulu offers.[16]

With the number of cars on the roads and the traffic congestion issue in Hawai'i, there is a need for alternative transportation choices. One of the alternative transportation choices is the Honolulu Rail system that is said to be completed in decade. This rail system will run from Kapolei on the west side of O'ahu to the heart of Honolulu at Ala Moana Shopping Center. This rail is said to alleviate traffic congestion, provide residents and visitors alternative means of transportation and create live-work areas around the transit station stops. As the proposed rail line enters Honolulu it will separate Honolulu from the waterfront in certain areas. This will cause disconnectivity and displacement. The "Lei of Green" will help to bridge those current gaps and separations (and the ones caused by rail), allowing safe, comfortable access for residents and visitors to get to the greenway with or without rail cutting through the streets. The walkable greenway will serve to connect people back to the environment and be disconnected from vehicular traffic. Also, when the rail is complete and running from Kapolei to Ala Moana Shopping Center, it will allow for residents from Kapolei and throughout the line to get to Honolulu and onto the "Lei of Green" to bike or jog.

5. " for residents…"

A bicycle-friendly city makes it easier for residents to choose to ride a bicycle. It benefits the community by reducing congestion and pollution as well as increasing the safety on roadways.[17]

Bringing the "Lei of Green" to Honolulu will attract and allow for all types of pedestrians (of all walks of life) to experience a safe, useful, comfortable and recreational pathway system. This proposed pathway is intended to help alleviate the number of cars on the roads by promoting walking and bicycling to places as a choice, by creating pathways that are attractive, safe, useful and comfortable therefore people will gravitate to it. The key is to design pathways that will attract people to want to be on it and around it.

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[16] Internet. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 11. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

[17] Internet. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 11. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

6. " and visitors…"

Bicycling not only benefits our residents, it is a choice that tourist have as well. This part of the vision alludes to the possibilities that bicycling can contribute to further diversification in our tourist-based economy.[18]

The "Lei of Green" is intended for residents and visitors to the State. Hawai'i always seeks to find ways to create venues that attract tourists to Hawai'i, keeping Hawai'i's environment fresh. Implementing this greenway will create another form of tourist attraction that promotes exercise, recreation and outdoor activities. It will allow tourists to enjoy Hawai'i's weather, views, beaches, landmarks and culture, while riding or walking on the "Lei of Green."

7. " of all ages…"

This captures the essence of the plan where riding a bicycle is for everyone. Honolulu offers bikeways that are safe for a child to ride to school and adult to commute to work or an elderly person to ride to the post office.[19]

As stated before, the "Lei of Green" is intended for all types of users from the handicapped, to the marathon runners, to the mother strolling her baby, to the elementary children walking to school. College students will be using the path as well as bicyclists. The path is multi-use and will have separated walkways and bikeways to create a safer environment for the users. Each path will be indicated with color paint and signage, alerting and informing users of the safety precautions, rules and different paths. Creating a safe environment will attract all sorts of people to experience the pathway creating a diverse and vibrant pathways system.

[18] Internet. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 11. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

[19] Internet. "Honolulu Bicycle Master Plan." Helber Hastert & Fee, Planners; Bicycle Federation of America, Engineering Concepts, Inc.; David Cheever Marketing. April 2009. Page: 11. http://www.honolulutraffic.com/Admin_Record/Administrative_Record_rev_2.28.12/Administrative_Record_Volumes_1-11/Vol001_AR00000001/AR00014753.pdf

SUMMARY OF FINDINGS

Although the "Lei of Parks" is a Bicycle Plan for Honolulu, it shares the same desire to promote bicycling in Honolulu as with the "Lei of Green" proposal. The "Lei of Parks" main initiatives are:

1. The construction of a "Lei of Parks" linking the city's regional parks and attractions from Diamond Head to Aloha Tower.
2. A continuous bikeway from Kahala to Pearl City serving over 450,000 residents in the primary urban center.
3. Improve access to O'ahu colleges and universities.

The "Lei of Parks" initiatives and goals are the same as the "Lei of Green" (except that the "Lei of Green" proposal is focused in the Honolulu area). The "Lei of Parks" will serve as a resource where its design and ideas will be extracted to form design criteria for the "Lei of Green" design proposal.

KEY POINTS + LESSON LEARNED

- The Honolulu Bicycle Master Plan ("Lei of Parks") has ideas similar to the "Lei of Green" proposal such as using Ala Moana's inner road as a pathway, using parts of the Ala Wai Canal as a pathway and linking pathways from Ala Moana to Diamond Head. The "Lei of Parks" will be a foundation for completing the research of the "Lei of Green" design proposal.
- "Lei of Parks" plan is not yet fully implemented and far from finished, Honolulu streets are still unsafe for bicyclists.
- Walking certain parts of the "Lei of Parks" pathway, I saw signs that identified "Lei of Parks" areas. Like the "Lei of Parks," there will be special signage that identifies the "Lei of Green" pathway to pedestrians.
- The "Lei of Parks" was a product of extensive community visioning workshops, with residents, discussions and meetings with neighborhood boards in each community from Kahala to Pearl City.
- There was a law introduced for the "Lei of Parks." With the right support and help from the community and law makers, an idea can turn into a proposal that can then become a policy and then can be and actual built project.
- The "Lei of Parks" vision statement is being used as part of the design benchmarks that will be used in the "Lei of Green" design criteria for the design segment.

LEADERSHIP IN ENERGY AND ENVIRONMENAL DESIGN (LEED)
GREEN NEIGHBORHOODS DEVELOPMENT

LEED (Leadership in Energy and Environmental Design) has been an important aspect in building design and is becoming a national standard for building anything in the U.S. In recent years, LEED has expanded its rating system and now has criteria for neighborhood development to acquire LEED credits and certification.

What is LEED- Neighborhood Development?

LEED- Neighborhood Development is a rating system that integrates the principles of smart growth, urbanism and green building into the first national system for neighborhood design.[20] *LEED certification verifies that a development's location and design meet accepted high levels of environmentally responsible, sustainable development.*[21] *LEED for Neighborhood Development recognizes development projects that successfully protect and enhance the overall health, natural environment and quality of life.*[22] *The rating systems promote the location and design of neighborhoods that reduce vehicle miles traveled, creating developments where jobs and services are accessible by foot or public transit and an array of green building and green infrastructure practices, particularly more efficient energy and water use.*[23]

Geared toward the research part of this doctorate project, the LEED- Neighborhood Development criteria will be used in selecting which criteria relates to the master plan of the "Lei of Green" concept I am proposing. The criteria chosen will then relate to the master plan and will later help to develop the design criteria for the "Lei of Green" design proposal's implementation. The following are the various criteria selected from the LEED- Neighborhood Development.

[20] Internet. Wikipedia. "LEED for Neighborhood Development." Wikipedia Foundation, INC. Last modified: April 22, 2013. http://en.wikipedia.org/wiki/LEED_for_Neighborhood_Development
[21] Internet. Wikipedia. "LEED for Neighborhood Development." Wikipedia Foundation, INC. Last modified: April 22, 2013. http://en.wikipedia.org/wiki/LEED_for_Neighborhood_Development
[22] Internet. Wikipedia. "LEED for Neighborhood Development." Wikipedia Foundation, INC. Last modified: April 22, 2013. http://en.wikipedia.org/wiki/LEED_for_Neighborhood_Development
[23] Internet. Wikipedia. "LEED for Neighborhood Development." Wikipedia Foundation, INC. Last modified: April 22, 2013. http://en.wikipedia.org/wiki/LEED_for_Neighborhood_Development

SMART LOCATIONS AND LINKAGE

Credit 3: Locations with Reduced Automobile Dependence

Intent: To encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use, thereby reducing greenhouse gas emissions, air pollution, and other adverse environmental and public health effects associated with motor vehicle use.[24]

One of the leading reasons why Hawai'i needs a "Lei of Green" is to help promote alternative ways of transportation such as biking, walking and to find ways to decrease the need and dependency on vehicle transportation. Car congestion in Hawai'i is a big problem and getting worse. Hawai'i needs alternative means of transportation without having to spend a lot of money fixing things. What better way to start fixing transportation issues than by implementing the first kind of transportation known to man, using our own two feet! By reducing automobile dependency in Hawai'i, we can add positively to our environment fresh, by minimizing air pollution, gas emissions and creating a healthier and cleaner environment for people to live in.

Credit 4: Bicycle Network and Storage

Intent: To promote bicycling and transportation efficiency, including reduced vehicle miles traveled (VMT). This will help to support public health by encouraging utilitarian and recreational physical activity.[25]

In Hawai'i there have been plans to increase bike lanes throughout Honolulu and other urban neighborhoods on O'ahu that will be efficient, safe and accessible for bikers. Although there have been bike plans that have started and some implemented, the "Lei of Green" proposal will add to the effort in creating walkable and bikeable pathways throughout Honolulu that allow users to get around comfortably, safely and efficiently. Promoting biking will help to decrease the need for cars on the roads. As we know, Hawai'i has a major problem with traffic congestion due to the high increase of vehicles owned (one car per person in a household). Biking will allow residents and visitors to take advantage of what the "Lei of Green" has to offer. The "Lei of Green" will create year round opportunities for tourists and locals to enjoy the warm

[24] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 27.
[25] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 29.

sunshine, great weather and environment. Biking promotes a healthier approach to transportation and gives Hawaii's residents and visitors a better quality of life. Each park running along the "Lei of Green" will have bike racks and bike facilities for bikers to enjoy and use. Bikers will also have their own lanes along the designated bike paths that will be separated from pedestrian lanes.

NEIGHBORHOOD PATTERN AND DESIGN

Credit 1: Walkable Streets

Intent: Promote transportation efficiency, including reduced vehicle miles traveled (VMT). To promote walking by providing safe, appealing, and comfortable street environments that support public health by reducing pedestrian injuries and encouraging daily physical activity.[26]

In Hawai'i, streets are busy with cars and most sidewalks, other than some areas of Downtown and Chinatown, in Honolulu, are unsafe, uninviting and poorly utilized. This creates the desire to drive rather than walk. One of the most important aspects of city planning, that is often over looked, is the sidewalk. Having walkable sidewalks will affect the vitality of the city. Creating better pedestrian sidewalks will promote walking in Hawai'i. Streetscapes need to provide active retail, trees with shade, wide sidewalks, cafes, seating, bike racks and adequate lighting. Designing sidewalks to be attractive and lively, with multiple activities on the path, will increase foot traffic in the area. If Honolulu focused on catering to pedestrians and improving walkability, sidewalks will no longer be underutilized. Pedestrian-friendly sidewalk designs will increase foot traffic and decrease vehicular traffic in the area. Creating walkable streets will:

- Put a stop to cars shaping our cities and communities.
- Create more activities along sidewalks that attract people to want to walk rather than drive. Sidewalks will become more lively and vibrant.
- Create a safe and accessible environment for the pedestrians.
- Welcome biking into cities, as a healthier form of transportation than driving.
- Help to shape spaces and create edges to our public spaces.

[26] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 48.

- Allow for landscaping and bringing nature into a city. Trees are valuable and a good investment that deserve to be in any city.
- Focus on creating spaces and building faces that attract and fit the needs of pedestrians. The idea is to create active facades that invite walking.

Based on the above, the "Lei of Green" design will represent a walkable greenway system that is pedestrian- friendly, accessible to all, connects gaps and separations, and creates continuity throughout Honolulu. This greenway system will also promote alternative means of transportation, attract pedestrians with its design features such as landscaping and activities and create a vibrant, lively walkable pathway that adds to the quality of life of all people.

Credit 5: Reduced Parking Footprint

Intent: Design parking to increase the pedestrian orientation of projects and minimize the adverse environmental effects of parking facilities. To reduce public health risks by encouraging daily physical activity associated with walking and bicycling.[27]

It is difficult to reduce parking areas since parking is vital to businesses and people who live in this vehicle- driven society. In order to create pedestrian-friendly streets, parking will need to be addressed. For certain areas on the "Lei of Green" path, parking will be re-evaluated to fit the design criteria of the walkable greenway that will run through Honolulu, separated from vehicular traffic. In Hawai'i, parking is everywhere - on our roads, in our parking structures and one the biggest waste of spaces in Honolulu – large vacant parking lots. Promoting walkable streets and communities will require careful planning and consideration of parking placement for existing businesses. This may require taking out a lane or two, or adding bike lanes or landscaped median strips. This criteria will be taken into consideration when looking for solutions to transportation barriers and unsafe streets along the "Lei of Green" proposal for Honolulu.

[27] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 60.

Credit 6: Street Network

Intent: Promote projects that have high levels of internal connectivity and are well connected to the community at large. To encourage development within existing communities, thereby conserving land and promoting multimodal transportation. To improve public health by encouraging daily physical activity and reducing the negative effects of motor vehicle emissions.[28]

The "Lei of Green" design is meant to create links and connections to the gaps and separations that are caused by various transportation barriers. This walkable greenway proposal is not meant to "reinvent the wheel" with Honolulu streets. The "Lei of Green" proposal looks to better solutions in improving Honolulu's streetscapes, using what already exists and finding solutions to make walking in the city safer, comfortable, useful and interesting for pedestrians. The "Lei of Green" will connect, not only places such as recreational parks, beaches, landmarks and colleges, but, to communities from Downtown to Diamond Head and to Mānoa. These pathways systems promote physical activity, exercise and traveling by foot or bike rather than by car, reducing the negative effects of motor vehicle emissions in our environment.

Credit 7: Transit Facilities

Intent: Encourage transit use and reduce driving by providing safe, convenient, and comfortable transit waiting areas and safe and secure bicycle storage facilities for transit users.[29]

When designing for a walkable greenway, it is important to create areas with facilities that cater to pedestrians and bikers such as restrooms, sitting areas, bike facilities, eating areas, exercise areas and possibly areas where pedestrians can shower and change before or after work. Having these types of facilities available to pedestrians, will create a convenient experience and draw people to want to use the "Lei of Green."

[28] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 62.

[29] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 64.

Credit 8: Transportation Demand Management

Intent: To reduce energy consumption, pollution from motor vehicles and adverse public health effects by encouraging multimodal travel.[30]

The "Lei of Green" promotes minimizing cars on the road and encourages other means of transportation that lessen air pollution, health problems, and environmental damage and at a minimal expense. Even if gas prices do not increase or if the time it takes for people to get to work is bearable, the "Lei of Green" will help to provide other options that can save money, create a better healthier life-style, reduce commuting times, and improve our environment's air quality. The number one cause of asthma attacks in Hawai'i is due to CO2 pollution in the air caused by cars' gas emissions. Finding ways to lessen cars on the roads will improve the quality of life of the residents and visitors of Hawai'i.

Credit 9: Access to Civic and Public Spaces

Intent: Improve physical and mental health and social capital by providing a variety of open spaces close to work and home to facilitate social networking, civic engagement, physical activity, and time spent outdoors.[31]

The "Lei of Green" will run through existing parks in Honolulu and promote outdoor recreation and exercise along the paths. The "Lei of Green" will help to make these outdoor recreational parks accessible to the public through a system of pathways that are separated from vehicular traffic. With the rise in heart disease, strokes, obesity in young children, diabetes, cancer of all kinds and mental illness, it is essential to provide communities with places to exercise and enjoy leisure strolls that are convenient, easy to get to, useful and comfortable for users of all ages. Creating a walkable greenway system, running through Honolulu, will allow better access points for pedestrians to move from places like Downtown to Mānoa and on to Kapahulu. Designing the path in different neighborhoods allows people the option to walk to places rather than to drive. Accessibility is important when designing a greenway because the better access you provide for users that are convenient, safe and comfortable, the more people will use.

[30] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 65.

[31] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 67.

Credit 10: Access to Recreation Facilities

Intent: Improve physical and mental health and social capital by providing a variety of recreational facilities close to work and home to facilitate physical activity and social networking.[32]

Honolulu's parks are mainly located at the waterfront areas like Kaka'ako Waterfront Park, Ala Moana Beach Park, Ala Wai District Park and Kapi'olani District Park. These parks currently are separated by transportation barriers and do not have effective walkable connections that link each park together. The "Lei of Green" provides pathways and pedestrian bridges that link these separations and gaps, creating continuity from one park to another. This planned continuity will allow for people to experience each park by foot and to have better access to get to each park.

Credit 11: Visibility and Universal Design

Intent: To enable the widest spectrum of people, regardless of age or ability, to more easily participate in community life by increasing the proportion of areas usable by people of diverse abilities.[33]

It is important to create a walkable greenway that belongs to everyone, from young to old, wheelchair bound to bikers, rich to poor. In this case, the "Lei of Green" will have designated areas along the path for bikers, separated from the regular pedestrian's walking path. The path is designed to be accessible for the handicapped and signage will indicate where pathways are shared by bikers, the handicapped and walkers. Bright green paint will be used to identify the bike paths from the regular walking paths. The "Lei of Green" is for everyone, from all walks of life and reminds all people, that Hawai'i is a place with many different cultures and ethnicities who together – live, work, exercise and enjoy nature. The "Lei of Green" plans will embody the sense of place and capture the Aloha spirit!

[32] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 68.

[33] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 69.

Credit 14: Tree-Lined and Shaded Streets

Intent: Encourage walking, bicycling, and transit use and discourage excessive motoring speeds. To reduce urban heat island effects, improve air quality, increase evapotranspiration, and reduce cooling loads in buildings.[34]

Throughout the "Lei of Green" proposal for Hawai'i, landscaping will be a major design element. Finding the connection with nature and people is important and bringing nature into our built environment helps to integrate Hawai'i's culture and environment. Trees, plants, shrubs, and water features will be a part of the design for the "Lei of Green." These design elements will not only be used as attractions, but, will also improve the air quality in Hawai'i as well as increase shaded areas throughout the path, for the comfort and enjoyment of the pedestrians.

Credit 15: Neighborhood Schools

Intent: Promote community interaction and engagement by integrating schools into the neighborhood. To support students' health, by encouraging walking and bicycling to school.[35]

Connectivity to schools in communities is important in an urban environment. In Hawai'i our colleges are located a far distance from town, where it would require students and teachers to use vehicular means of transportation to get around. Instead of integrating schools into neighborhoods like the LEED- Neighborhood Development criteria states, using the existing schools in our neighborhoods and finding ways to create continuity between them would be just as beneficial. Creating accessible pathways that allow pedestrians to walk or bike to destinations, using a designed pathway system that connects parks, beaches, landmarks and schools safely and comfortably will help to make other places in Honolulu accessible to college students and teachers who use public or vehicle transportation daily or weekly. Finding a way to bridge the gaps and separations between UH Mānoa and Kapi'olani Community College to the rest of Honolulu will be beneficial for students, teachers, and visitors. Promoting biking and walking through the "Lei of Green" will not only allow alternative means of transportation for college students and teachers but will also be healthier alternatives to traveling.

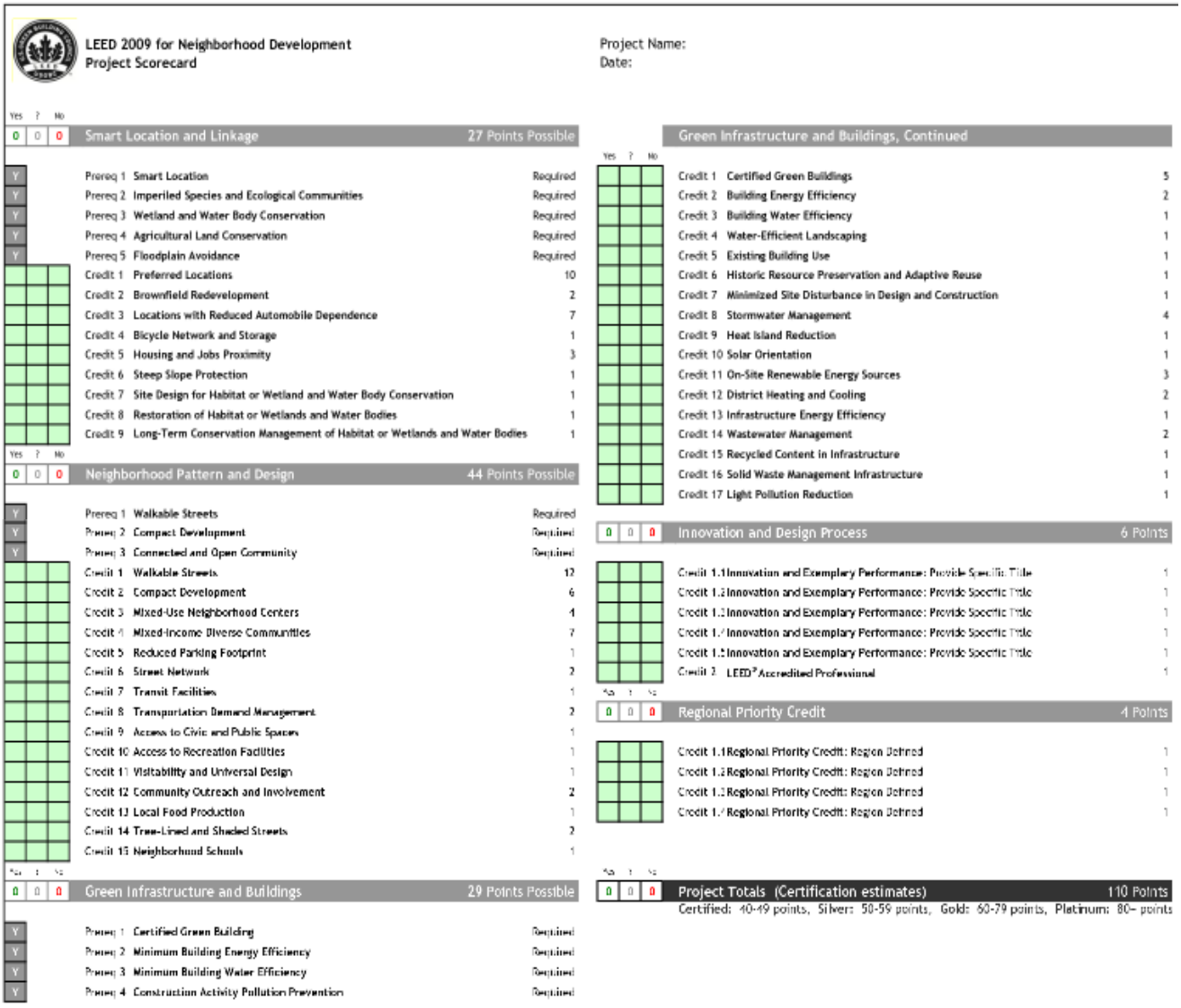
[34] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 75.
[35] The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009. Page: 76.

SUMMARY OF FINDINGS

Looking over the LEED- Neighborhood Development criteria, a number of criteria were selected and analyzed to form a basis of benchmarks, relative to the "Lei of Green" design proposal. The LEED- Neighborhood Development will help to build design criteria for the "Lei of Green" design proposal. The LEED- Neighborhood Development criteria helps to understand what the important aspects of neighborhood design are and how the "Lei of Green" can fit into and qualify for LEED credits in neighborhood design.

KEY POINTS + LESSONS LEARNED

- LEED: Neighborhood Development is a National Standard that puts the "Lei of Green" proposal in LEED standing to obtain LEED credits.
- LEED: Neighborhood Development helps to structure the ideas of the "Lei of Green."
- LEED: Neighborhood Development has similar ideas as the "Lei of Green" proposal such as reducing automobile dependency, creating bicycle networks with adequate bicycle storage, reducing the parking footprint of communities, creating better access to recreation facilities and public spaces, just to name a few.
- LEED: Neighborhood Development rating system will not only provide design benchmarks but provide environmentally responsible, sustainable solutions for the "Lei of Green."
- LEED: Neighborhood Development recognizes development projects that successfully protect and enhance the overall health, natural environment and quality of life for neighborhoods.
- LEED: Neighborhood Development credits do not ensure a perfect fix or fit for Hawai'i but it will have a positive effect on Hawai'I, if implemented.



LEED 2009 for Neighborhood Development
Project Scorecard

Project Name:
Date:

Yes ? No

0 0 0 Smart Location and Linkage — 27 Points Possible

Y	Prereq 1 Smart Location	Required
Y	Prereq 2 Imperiled Species and Ecological Communities	Required
Y	Prereq 3 Wetland and Water Body Conservation	Required
Y	Prereq 4 Agricultural Land Conservation	Required
Y	Prereq 5 Floodplain Avoidance	Required
	Credit 1 Preferred Locations	10
	Credit 2 Brownfield Redevelopment	2
	Credit 3 Locations with Reduced Automobile Dependence	7
	Credit 4 Bicycle Network and Storage	1
	Credit 5 Housing and Jobs Proximity	3
	Credit 6 Steep Slope Protection	1
	Credit 7 Site Design for Habitat or Wetland and Water Body Conservation	1
	Credit 8 Restoration of Habitat or Wetlands and Water Bodies	1
	Credit 9 Long-Term Conservation Management of Habitat or Wetlands and Water Bodies	1

Yes ? No

0 0 0 Neighborhood Pattern and Design — 44 Points Possible

Y	Prereq 1 Walkable Streets	Required
Y	Prereq 2 Compact Development	Required
Y	Prereq 3 Connected and Open Community	Required
	Credit 1 Walkable Streets	12
	Credit 2 Compact Development	6
	Credit 3 Mixed-Use Neighborhood Centers	4
	Credit 4 Mixed-Income Diverse Communities	7
	Credit 5 Reduced Parking Footprint	1
	Credit 6 Street Network	2
	Credit 7 Transit Facilities	1
	Credit 8 Transportation Demand Management	2
	Credit 9 Access to Civic and Public Spaces	1
	Credit 10 Access to Recreation Facilities	1
	Credit 11 Visitability and Universal Design	1
	Credit 12 Community Outreach and Involvement	2
	Credit 13 Local Food Production	1
	Credit 14 Tree-Lined and Shaded Streets	2
	Credit 15 Neighborhood Schools	1

Yes ? No

0 0 0 Green Infrastructure and Buildings — 29 Points Possible

Y	Prereq 1 Certified Green Building	Required
Y	Prereq 2 Minimum Building Energy Efficiency	Required
Y	Prereq 3 Minimum Building Water Efficiency	Required
Y	Prereq 4 Construction Activity Pollution Prevention	Required

Green Infrastructure and Buildings, Continued

Yes ? No

	Credit 1 Certified Green Buildings	5
	Credit 2 Building Energy Efficiency	2
	Credit 3 Building Water Efficiency	1
	Credit 4 Water-Efficient Landscaping	1
	Credit 5 Existing Building Use	1
	Credit 6 Historic Resource Preservation and Adaptive Reuse	1
	Credit 7 Minimized Site Disturbance in Design and Construction	1
	Credit 8 Stormwater Management	4
	Credit 9 Heat Island Reduction	1
	Credit 10 Solar Orientation	1
	Credit 11 On-Site Renewable Energy Sources	3
	Credit 12 District Heating and Cooling	2
	Credit 13 Infrastructure Energy Efficiency	1
	Credit 14 Wastewater Management	2
	Credit 15 Recycled Content in Infrastructure	1
	Credit 16 Solid Waste Management Infrastructure	1
	Credit 17 Light Pollution Reduction	1

0 0 0 Innovation and Design Process — 6 Points

	Credit 1.1 Innovation and Exemplary Performance: Provide Specific Title	1
	Credit 1.2 Innovation and Exemplary Performance: Provide Specific Title	1
	Credit 1.3 Innovation and Exemplary Performance: Provide Specific Title	1
	Credit 1.4 Innovation and Exemplary Performance: Provide Specific Title	1
	Credit 1.5 Innovation and Exemplary Performance: Provide Specific Title	1
	Credit 2 LEED® Accredited Professional	1

0 0 0 Regional Priority Credit — 4 Points

	Credit 1.1 Regional Priority Credit: Region Defined	1
	Credit 1.2 Regional Priority Credit: Region Defined	1
	Credit 1.3 Regional Priority Credit: Region Defined	1
	Credit 1.4 Regional Priority Credit: Region Defined	1

0 0 0 Project Totals (Certification estimates) — 110 Points

Certified: 40-49 points, Silver: 50-59 points, Gold: 60-79 points, Platinum: 80+ points

Image: The LEED- Neighborhood Development Project Scorecard.[36]

[36] Image. The Congress for the New Urbanism, Natural Resources Defense Council and the U.S Green Building Council. "LEED 2009 for Neighborhood Development: Rating System." Last modified: October 2012. U.S Green Building Council, c2009.

"THE IMAGE OF THE CITY"
KEVIN LYNCH

"The Image of the City" is an insightful book written in the 1960's by the famous urban planner, Kevin Lynch. "The Image of the City" describes observations researched in the cities of Boston, New Jersey and Los Angeles in a span of 5 years of how people orient themselves in a city. Lynch wrote that the users understood their surroundings in consistent and predictable ways, forming mental maps.[37] The mental maps consist of five elements that help people to perceive the spatial arrangement of a city- its legibility:

Paths: *are the channels along which the observer customarily, occasionally, or potentially moves. They may be streets, walkways, transit lines, canals, railroads. For many people, these are the predominant elements in their image. People observe the city while moving through it, and along these paths the other environmental elements are arranged and related.*[38]

Edges: *are linear elements not used or considered as paths by the observer. They are the boundaries between two phases, linear breaks in continuity: shores, railroad cuts, edges of development, walls. They are lateral references rather than coordinate axes. Such edges may be barriers, more or less penetrable, which close one region off from another; or they may be seams, lines along which two regions are related and joined together. These edge elements, although probably not as dominant as paths, are for many people important organizing features, particularly in the role of holding together generalized areas, as in the outline of a city by water or wall.*[39]

Districts: *are medium-to-large sections of the city, conceived of as having two-dimensional extent, which the observer mentally enters "inside of," and which are recognizable as having some common, identifying character. Always identifiable from the inside, they are also used for exterior reference if visible from the outside. Most people structure their city to some of district*

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[37] Lynch, Kevin. "The Image of the City." The MIT Press, Cambridge, Massachusetts and London, England. c1960. Page: 46
[38] Lynch, Kevin. "The Image of the City." The MIT Press, Cambridge, Massachusetts and London, England. c1960. Page: 47
[39] Lynch, Kevin. "The Image of the City." The MIT Press, Cambridge, Massachusetts and London, England. c1960. Page: 47

are the dominant elements. It seems to depend not only upon the individual but also upon the given city.[40]

Nodes: *are points, the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is traveling. They may be primarily junctions, places of a break in transportation, a crossing or convergence of paths, moments of shift from one structure to another. Or the nodes may be simply concentrations, which gain their importance from being the condensation of some use or physical character, as a street-corner hangout or an enclosed square. Some of these concentration nodes are the focus and epitome of a district, over which their influence radiates and of which they stand a symbol. They may be called cores. Many nodes, of course, partake of the nature of both junctions and concentrations. The concept of node is related to the concept of path, since junctions are typically the convergence of paths, events on the journey. It is similarly related to the concept of district, since cores are typically the intensive foci of districts, their polarizing center. In any event, some nodal points are to be found in almost every image, and in certain cases they may be the dominant feature.*[41]

Landmarks: *are another type of point-reference, but in this case the observer does not enter within them, they are external. They are usually a rather simply defined physical object: building, sign, store, or mountain (for example: Aloha Tower and Diamond Head). Their use involves the singling out of one element from a host of possibilities. Some landmarks are distant ones, typically seen from many angles and distances, over the tops of smaller elements, and used as radial references. They may be within the city or at such a distance that for all practical purposes they symbolize a constant direction. Such are isolated towers, golden domes, great hills. Even a mobile point, like the sun, whose motion is sufficiently slow and regular, may be employed. Other landmarks are primarily local, being visible only in restricted localities and from certain approaches. These are the innumerable signs, store fronts, trees, doorknobs, and other urban detail, which fill in the image of most observers. They are frequently used clues of identity and even of structure, and seem to be increasingly relied upon as a journey becomes more and more familiar.*[42]

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[40] Lynch, Kevin. "The Image of the City." The MIT Press, Cambridge, Massachusetts and London, England. c1960. Page: 47

[41] Lynch, Kevin. "The Image of the City." The MIT Press, Cambridge, Massachusetts and London, England. c1960. Page: 47-48

[42] Lynch, Kevin. "The Image of the City." The MIT Press, Cambridge, Massachusetts and London, England. c1960. Page: 48

According to Kevin Lynch, these features of the built environment are important to the people of a city and that they contribute to an individual's perception of their city. For this project I will be taking these five elements of city design and applying it to the vision I have for the "Lei of Green" design proposal. These elements will help to support the visual communication of the project and to convey my ideas and vision through diagrams. The diagram below shows how I used symbols similar to Kevin Lynch's to organize my site plan, which will be used in other diagrams expressing main points, and design issues of the "Lei of Green" proposal.

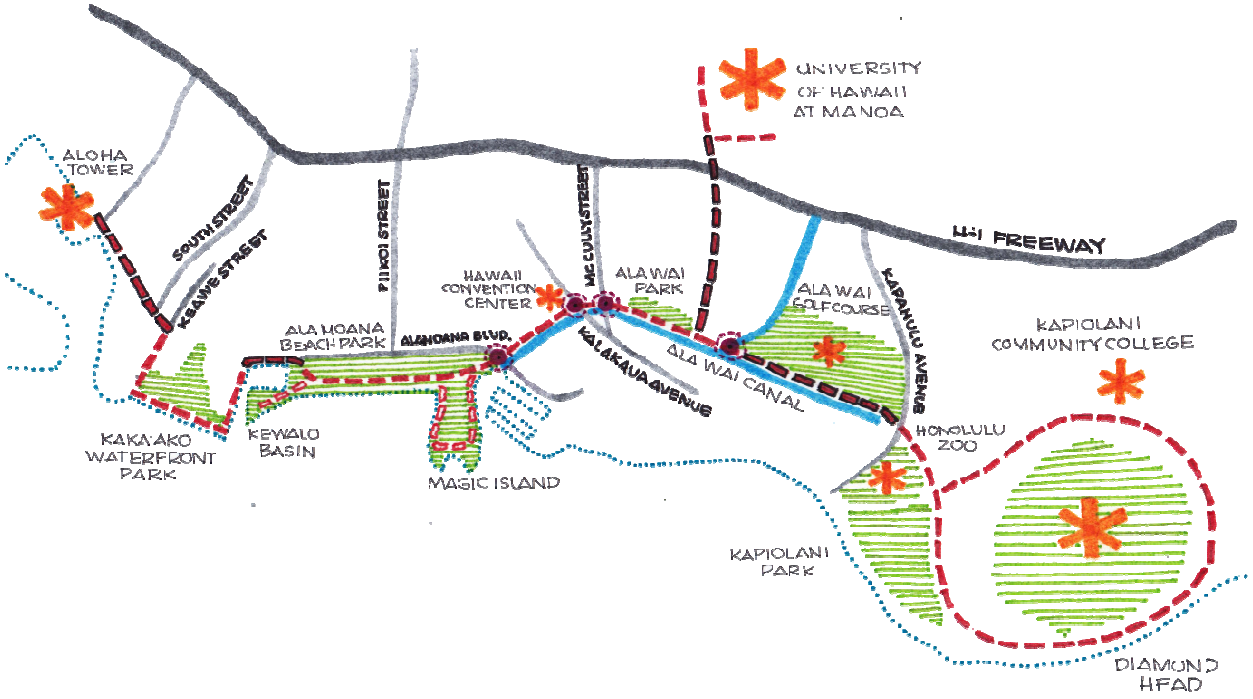

Image: Author's drawing of the "Lei of Green" Master Plan

PATHS

THE STREETS, SIDEWALKS, TRAILS AND OTHER CHANNELS IN WHICH PEOPLE TRAVEL

PATH - "LEI OF GREEN"

PATH - "LEI OF GREEN" SECONDARY PATH

PATH - DESIGN ISSUE

EDGES

PERCEIVED BOUNDARIES SUCH AS WALKS, BUILDINGS AND SHORELINES

EDGE - OCEAN

EDGE - ALA WAI CANAL

EDGE - H-1 FREEWAY

EDGE - MAIN STREETS THAT CONNECT WITH "LEI OF GREEN"

DISTRICTS

RELATIVELY LARGE SECTIONS OF CITY DISTINGUISHED BY SOME IDENTITY OF CHARACTER

DISTRICT

NODES

FOCAL POINTS, INTERSECTIONS AND OR LOCI

NODE - DESIGN ISSUE

LANDMARKS

READILY IDENTIFIABLE OBJECTS WHICH SERVE AS EXTERNAL REFERENCE POINTS

LANDMARK - PLACE OF INTEREST

PARK

WALKABLE COMMUNITIES

WHAT IS A WALKABLE COMMUNITY?

A walkable community is one where it is easy and safe to walk to goods and services (i.e., grocery stores, post offices, health clinics, etc.).[43] *Walkable communities encourage pedestrian activity, expand transportation options, and have safe and inviting streets that serve people with different ranges of mobility.*[44]

Image: Fisherman's Wharf [45]

[43] Internet. "A Resident's Guide for Creating Safe and Walkable Communities." U.S Department of Transportation: FHWA Safety. http://safety.fhwa.dot.gov/ped_bike/ped_cmnity/ped_walkguide/about.cfm
[44] [44] Internet. "A Resident's Guide for Creating Safe and Walkable Communities." U.S Department of Transportation: FHWA Safety. http://safety.fhwa.dot.gov/ped_bike/ped_cmnity/ped_walkguide/about.cfm
[45] Internet. Image. "Fisherman's Wharf Photo: Fisherman's Wharf and Pier 39, San Francisco, California. Niebrugge Images. Stock Photo of San Francisco, California. http://www.wildnatureimages.com/Fisherman's%20Wharf%202.htm

WHAT DOES A WALKABLE COMMUNITY LOOK LIKE?

- People of all ages and abilities have easy access to their community "on foot" - an automobile is not needed for every trip.
- People walk more and the community and neighborhoods are safer, healthier, and friendlier places.
- Parents feel comfortable about their children being outside in their neighborhoods; they do not worry about the threat of motor vehicle accidents.
- Children spend more time outside with other children and are more active, physically fit, and healthy.
- Streets and highways are designed or reconstructed to provide safe and comfortable facilities for pedestrians, and they are safe and easy to cross for people of all ages and abilities.
- Pedestrians are given priority in the neighborhood, work, school and shopping areas. Motor vehicle speeds are reduced (and, in some places, motor vehicles have been eliminated entirely) to ensure compatibility with pedestrian traffic.
- Motor vehicle operating speeds are carefully controlled to ensure compatibility with adjacent land uses and the routine presence of pedestrians.
- Drivers of motor vehicles operate them in prudent, responsible fashion, knowing that they will be held strictly accountable for any threat, injury, or death caused by their lack of due care or violation of the vehicle code.
- The air and water quality is good.[46]

[46] Internet. "Creating Walkable Communities: A guide for Local Governments." Bicycle Federation of America Campaign to Make America Walkable. December1998. http://www.bikewalk.org/pdfs/ncbwpubwalkablecomm.pdf

The "Lei of Green" will be a place for all ages and abilities to have easy access to places "on foot" instead of using a car for traveling. Creating a walkable greenway system will attract people to walk more and create a safer, healthier and friendlier place in our communities, parks and neighborhoods. The "Lei of Green" is intended to create a safe environment for pedestrians, as the path is separated from vehicular traffic. The greenway will encourage all ages to be outside, be more active, physically fit and healthy in safe environment. Some areas along the path will be altered to provide safe and comfortable facilities for pedestrians and people of all ages and abilities. The pedestrians are the main priority on the "Lei of Green" and traffic speeds near the pedestrian pathways will be reduced to create a safer environment for pedestrians. With increased walking, there will be less driving, traffic congestion and reduced CO2 pollution. This walkable greenway will promote a cleaner environment and better air-quality for the people using or living around the path.

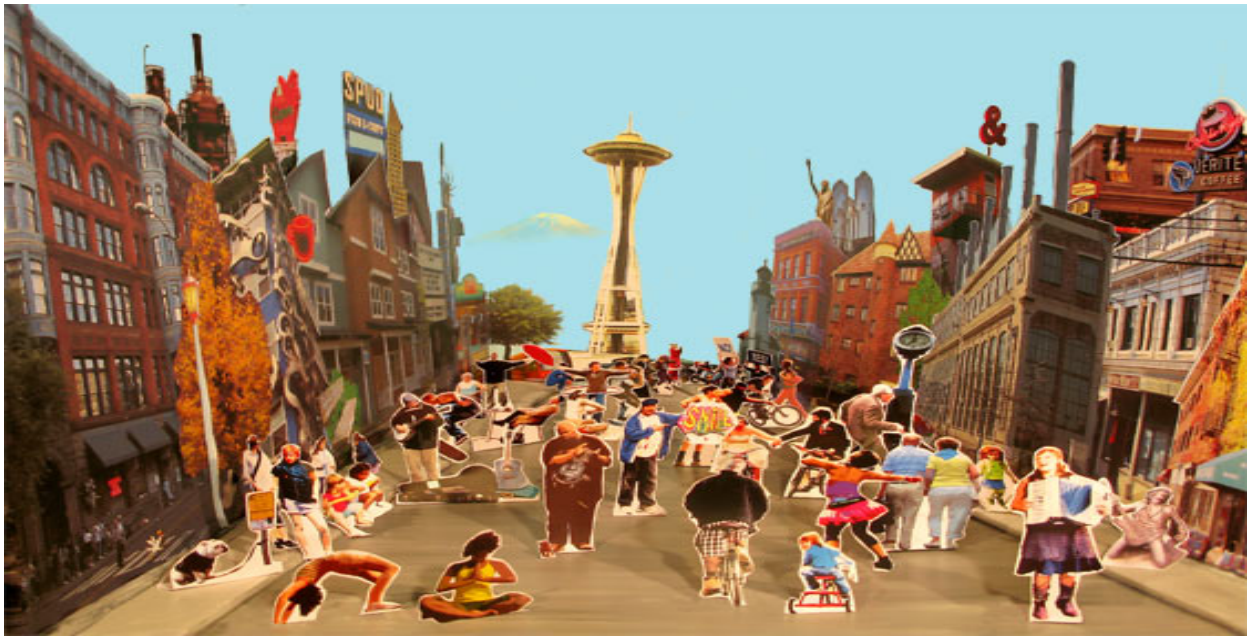

Image: Walk.Bike.Shop.Breathe.Play in Seattle Washington. [47]

[47]Internet. Image. Celebrate Seattle Summer Streets Walk.Bike.Shop.Breathe.Play: 2008 Car Free Days in Review." Seattle.gov. Department of Transportation. City of Seattle. C1995-2013. http://www.seattle.gov/transportation/carfreedays.htm

CHARACTERISTICS OF A WALKABLE COMMUNITY

Learning about the characteristics of a walkable community will help to understand the various kinds of design issues that need to be addressed, to create a walkable greenway for Honolulu.

1. Coherence:

A clear, understandable and organized sidewalk, street and land-use system consistent with the scale and function of the surrounding urban context. The sidewalk and street system should link points of interest and activity, provide clean lines of sight and travel, and include simple instructive signage.

The "Lei of Green" will provide signs and graphics to inform pedestrians where they are, where they need to go, in helping a person travel comfortably to their destination. The path will connect to points of interest such as parks, beaches, landmarks, schools and places such as malls and restaurants. The "Lei of Green" will be a clear, understandable and organized pathway system that will provide pedestrians a comfortable and efficient walking experience.

2. Continuity:

A pattern of design and usage that unifies the pedestrian system.

In Honolulu there is dis-connectivity when it comes to parks, and getting around town. It is more convenient to drive than walk. With transportation barriers throughout the streets, it is difficult to walk from one point to another. Creating continuity throughout Honolulu will help to create a walkable city and promote less driving and more walking. Having a continuous pathway system that links parks, beaches, landmarks, malls, eateries, schools and communities will help to sew together Honolulu's dis-connectivity and create continuity throughout Honolulu.

3. Equilibrium:

A balance among transportation modes that will accommodate and encourage pedestrian participation.

When I think of equilibrium and the "Lei of Green", I think of how the city of Honolulu is heavily urbanized and that the greenway proposal will help to bring nature back into Honolulu, creating a balance of man-made elements and nature. The pathway will have rules for users and everyone from bikers, to mothers taking their children for strolls, will have equal rights to the pathway. Abiding by the rules while on the path, will help create a safe and comfortable environment, where everyone shows respect to one another.

4. Safety:

Pedestrian protection from automobiles and bicycles. Adequate time to cross intersections without interference. Physical separation from fast moving cars. Signalization protection when crossing intersections.

Safety is another important feature of the "Lei of Green" plan. The greenway's main purpose is to take pedestrians off the road and onto a pathway system that is separated from vehicular traffic. This action will help to protect pedestrians from automobiles. Signage that alerts drivers and pedestrians when crossing streets is an important design issue to address in certain areas along the greenway path.

5. Comfort:

Secure and negotiable paving materials for sidewalks and crosswalks. Unobstructed passage on the sidewalk and at corners. Signals timed to enable safe and quick crossings.

One goal of the "Lei of Green" is to design a path that is comfortable for its users. This entails creating safe conditions within the "Lei of Green" pathways and creating safe conditions for pedestrians from the main roadways. Paving materials for sidewalks and crosswalks are essential in preventing pedestrian slip and fall accidents. The pathway will have bike lanes for the bikers and pedestrian lanes for the rest of the users. This arrangement will prevent any unsafe situations along the path. Creating a comfortable environment for the users of the path will encourage more people to want to use the path. Crosswalks will need to be identified and known to pedestrians as well as drivers on the roadways by the use of signs or painted surfaces.

6. Sociability:

A sense of hospitability and suitability for individual and community interactions. Sidewalks should provide for a variety of uses and activities characteristic of the diverse urban scene.

The "Lei of Green" will include a variety of uses and activities along the path. The path will become a social scene for locals and visitors – a gathering place for family, friends and tourists. The path will form connections with other communities in Honolulu and create more interactive opportunities between each community and the greenway. Throughout the greenway there will be stopping points to view parts of Honolulu, sit and rest in the shade and enjoy various foods. The "Lei of Green" will be a greenway that accommodates the interests of a diverse population.

7. Accessibility:

The opportunity for all individuals to utilize the pedestrian environment as fully as possible.

Creating easy to find access points along the "Lei of Green" will encourage more people to use the path. Accessibility creates opportunity for pedestrians to utilize the pathway as fully as possible. People should be able to get on and off the path, comfortably, conveniently and efficiently.

8. Efficiency:

Simplicity and cost-effectiveness in design and function. Minimum delay along a walking route.

Instead of rebuilding sidewalks and having to spend money on building better paths, a cost-efficient way to fix design issues is the use of inexpensive paint and temporary materials. Some areas will have this type of treatment that will not create traffic congestion. They will require simply painting the sidewalk with indicated bike lanes and pedestrian lanes, along with planters that help to block the roadway from the greenway. There are some places where bike lanes exist and painting these bike lanes a bright green will indicate to pedestrians and drivers that the colored lane is specifically for bikes. The pathways will have signage to create a comfortable experience for people to know where they are going. Accessibility points at parks, landmarks, schools and other places of interest will enable users to leave and return to the path, as they choose. This will allow the main pathway to be a continuous journey, with minimal delay and interruptions for the user

9. Attractiveness:

Clean, efficient and well- maintained surroundings, with adjacent storefronts and activities that provide sidewalk interest.[48]

Creating an attractive, clean and well-maintained greenway will attract people to want to walk and experience the path. Routes through parks, landmarks, schools and communities will allow users to take in the aesthetics of nature and beautiful landscaping, while learning about Hawai'i, through information boards and enjoying nearby shops and eateries, during their walk.

[48] Internet. "Creating Walkable Communities: A guide for Local Governments." Bicycle Federation of America Campaign to Make America Walkable. December1998. http://www.bikewalk.org/pdfs/ncbwpubwalkablecomm.pdf

BENEFITS OF A WALKABLE COMMMUNITY

1. More Active and Healthier People
2. People and Family-Oriented Community Development
3. Transportation Choices
4. Independent Mobility for Children
5. Accessibility for All
6. Lower Income Mobility[49]

CHALLENGES OF MAKING COMMUNITIES MORE WALKABLE

1. Lower Density Development
2. Transportation Facility Barriers
3. Safety[50]

SUMMARY OF FINDINGS

Research on Walkable Communities has begun to shed light on the important aspects of what makes a place walkable and how it benefits pedestrians. Walkable Communities create a more active and healthier place for people, provide multiple transportation choices, allow children to walk independently and safely along the walkable paths, that are accessible for people from all walks of life. There are reasons for bringing a walkable greenway to Honolulu. The design of a walkable greenway in Honolulu should address the transportation barriers and the safety of pedestrians. Addressing these issues is important in understanding how communities can become safer, healthier and walkable, to benefit the quality of life of the pedestrians that interact and live in communities.

[49] Internet. "Creating Walkable Communities: A guide for Local Governments." Bicycle Federation of America Campaign to Make America Walkable. December1998. http://www.bikewalk.org/pdfs/ncbwpubwalkablecomm.pdf
[50] Internet. "Creating Walkable Communities: A guide for Local Governments." Bicycle Federation of America Campaign to Make America Walkable. December1998. http://www.bikewalk.org/pdfs/ncbwpubwalkablecomm.pdf

GREENWAYS

There are many ways to design a walkable community. One way is to introduce a greenway system that promotes walking, jogging, exercise; and includes landscaping, safer sidewalks which bridge the gaps and separations that tend to disconnect parts of communities/cities.

WHAT IS A GREENWAY?

A Greenway is a network of open spaces and trails for walking, jogging, biking and roller-blading that links neighborhoods and destinations such as parks, schools, libraries and shopping areas.[51] *The trails within the greenway provide access between neighborhoods and destination points, and opportunity to travel without an automobile.*[52] *Greenways promote alternative ways of transportation, are separated from vehicular traffic, encourage vegetation and promote a healthy way of living. Greenways, also called Linear Parks, can be a long corridor of protected open space, usually following natural geographic features, planned for environmental or scenic protection and to provide opportunities for recreation and non-motorized transportation.*[53] *Greenways can be new developments or redevelopments (ex. an abandoned railroad, towpath or unused highway).*[54] *Greenways are found in rural as well as urban areas and corridors redeveloped as greenways often travel through both city and country, connecting them together.*[55] *Even in rural areas greenways serve the purpose of providing residents access to open land managed as parks, as contrasted with land that is vegetated but inappropriate for public use, such as agricultural land.*[56] *Where the historic rural road network has been enlarged and redesigned for favor high speed automobile travel, greenways provide an alternative for people who are elderly, young, less mobile, or seeking a reflective pace.*[57] *Greenways are used all over the world but mostly seen in Europe and the United States.*[58]

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[51]Internet. "What is a Greenway?" Detroit Eastside Community Collaborative Corner Creek Greenway. WordPress". http://www.connercreekgreenway.org/conner-creek-greenway/

[52] Internet. "What is a Greenway." The University of Arkansas at Little Rock. Coleman Creek Project. The Higher Learning Comission. http://ualr.edu/colemancreek/benefits.asp

[53] Internet. "What is a Greenway." The University of Arkansas at Little Rock. Coleman Creek Project. The Higher Learning Comission. http://ualr.edu/colemancreek/benefits.asp

[54] Wikipedia. "Greenways (landscape)." Wikipedia Foundation, INC. Last modified: August 13, 2013. http://en.wikipedia.org/wiki/Greenway_(landscape)

[55] Wikipedia. "Greenways (landscape)." Wikipedia Foundation, INC. Last modified: August 13, 2013. http://en.wikipedia.org/wiki/Greenway_(landscape)

[56] Wikipedia. "Greenways (landscape)." Wikipedia Foundation, INC. Last modified: August 13, 2013. http://en.wikipedia.org/wiki/Greenway_(landscape)

[57] Wikipedia. "Greenways (landscape)." Wikipedia Foundation, INC. Last modified: August 13, 2013. http://en.wikipedia.org/wiki/Greenway_(landscape)

[58] Wikipedia. "Greenways (landscape)." Wikipedia Foundation, INC. Last modified: August 13, 2013. http://en.wikipedia.org/wiki/Greenway_(landscape)

Image: Greenway proposal in Panama City [59]

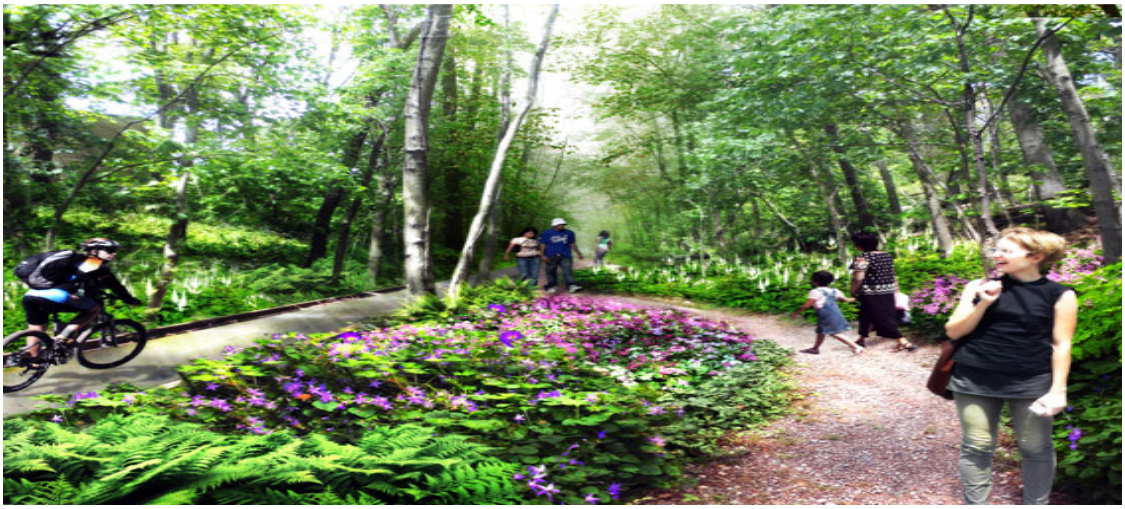


Image: Greenway in Nature [60]

[59] Internet. "Panama Pacifico, the great, the bad, the ugly." WordPRess. June 13, 2009. http://www.panamarg.com/2009/06/panama-pacifico-the-great-the-bad-and-the-ugly/

[60] Internet. Holmes, Damian. "Queens Way-New Park from abandoned rail spans in Queens." World Landscape Architecture. C2007-2011. http://worldlandscapearchitect.com/queensway-new-park-from-abandoned-rail-spans-in-queens-wxy-dland/#more-12841

Image: Diagram categorizing the different types of greenways[61]

[61] Internet. "What are Greenways?" North Central Pennsylvania Greenways. North Central PA Regional Planning and Development Commission. http://www.ncentralgreenways.com/?page_id=871

WHAT ARE THE PRINCIPLES OF A GREENWAY?

1. Preservation:

- *Identity and preserve valuable cultural and natural resources*

The "Lei of Green" will preserve the existing green spaces in Honolulu, especially on the waterfront. It is important to keep our open spaces maintained, useful to the public, accessible to users and to keep nature intact within the city. The "Lei of Green," will allow people from all walks of life to experience nature and the outdoor setting in our Hawaiian weather, in a comfortable environment that creates a local "sense of place". The "Lei of Green" will have information boards that focus on famous landmarks and historical places along the path. This path will be multi-functional, as an exercise, transportation and educational venue. In this way the "Lei of Green" will help to preserve our open parks, our culture and the Hawaiian "sense of place".

2. Restoration:

- *Restore sections of the river ecosystem damaged by adverse impacts of human activity, including invasive exotic species, previous land uses and water management practices.*

The "Lei of Green" will not focus on restoration of the eco-systems around the path, but will focus on restoration of parks by creating a pathway system that will allow for better access to our existing parks, restoring the significance the parks have to offer. The parks along the "Lei of Green" will act as an exercise hub/recreation area for people of Hawaii and visitors to use.

3. Water and Air Quality:

- *Protect and improve the water quality of rivers, tributaries, and other water resources. Improves air quality by promoting alternative ways of transportation, and creating paths separated from vehicular traffic.*

Creating alternative means of transportation will help to limit the amount of CO2 emissions in the air and pollution. The air quality in Honolulu will improve. Studies show most of the asthma attacks here in Hawai'i are due to the CO2 pollution in the air. Finding alternative means of transportation and creating a walkable city will improve the health and quality of life for all who live in and visit Hawai'i.

4. Recreation:

- *Plan and design recreation to allow all people appropriate access to experience the places along the path in a safe, meaningful, and responsible manner. Promote healthy living.*

The "Lei of Green" will provide recreation and exercise activities along the paths and the connecting parks. The greenway system will include multi-use paths for bikers and pedestrians, creating a safer environment that allows many types of users to take advantage of the pathways. Providing recreation opportunities for the public creates an active and healthy environment that improves the quality of life of those who use the path and live around it. The "Lei of Green" will provide another recreation activity for locals and tourists to enjoy.

5. Education:

- *Educate to increase understanding of the areas resources and importance to the people's quality of life.*

As stated earlier, education will be a design element throughout the "Lei of Green" trail. Along the trail there will be information boards that display information about landmarks, historical sites and important views. These boards will help to educate locals and visitors about the Hawaiian culture and Hawai'i.

6. Community Participation:

- *Incorporate meaningful public participation into all aspect of the greenery implementation.*[62]

What is an idea without supporters? For an idea to be implemented, support from diverse groups is necessary to create policies and programs. My hope is that the "Lei of Green" proposal can find its way to people who have a similar vision to enable implementation. The "Lei of Green" proposal is a baby step towards moving Hawai'i, in a positive direction, to preserve our unique island environment.

[62]Internet. "Chattahoochee River: Greenway Planning and Implementation Handbook: Introduction". Jordan Jones & Goulding. Fall 2010. Pages 3-4. http://www1.gadnr.org/greenspace/c_index.html

Image: Greenway beach proposal for the East River next to the Brooklyn Bridge. [63]

WHAT ARE THE DIFFERENT TYPES OF GREENWAYS?

According to the Chattahoochee River Greenway Planning and Implementation Handbook, there are three types of Greenways as classified below:

1. Recreation and Transportation

Some Greenways are created for recreational activities, such as hiking, biking, and in-line skating, jogging, running, and strolling. They also provide a means of getting from place to place without a car: to school, a friend's home, the library, a restaurant, or work, to name a few destinations. Greenways are safer alternatives to streets because they separate the user from automobiles. They also provide a more aesthetically pleasing atmosphere for the user. Due to the way they are located away from roads and direct fumes from automobiles, the air quality along greenways are better and "noise pollution" is diminished.[64]

The "Lei of Green" will be a recreation and transportation greenway that will provide paths for bikers, joggers, walkers, roller bladers and other pedestrian activity. This greenway will serve multi-purposes, as well as provide alternative transportation options that will not require motor vehicles. The greenways will provide a means of getting from place to place for routine travel to schools, the mall, the beach, the park, or the grocery store. Having this greenway will create a

[63] Internet. Miller, Stephen. "What might Brooklyn Bridge Beach mean for the East Side Greenway?" Streets Blog.org. August 1, 2013. http://www.streetsblog.org/2013/08/01/what-might-brooklyn-bridge-beach-mean-for-completing-the-greenway/

[64] Internet. "Chattahoochee River: Greenway Planning and Implementation Handbook: Introduction". Jordan Jones & Goulding. Fall 2010. Pages 3-4. http://www1.gadnr.org/greenspace/c_index.html

safer way of getting to places because the pathways will be separated from vehicular traffic. "The greenway will bring nature onto our streets and create a more aesthetically pleasing atmosphere for users".[65] The air quality along the path will be better since it will be separated from vehicular traffic in most parts along the path.

2. Conservation

Greenways are also beneficial for conservation. A greenway can be established to protect and preserve natural and cultural resources, whether they are rare species or an ecosystem, fragile geological areas, or a series of significant archeological sites. A greenway also can link various conservation areas and ecosystems with each other to allow for the movement of species. The greenway also provides a vital place of refuge for plants and animals, as more and more areas succumb to agriculture, logging and development pressures.[66]

(Not applicable for this "Lei of Green" project.)

3. Restoration of cultural and natural resources

Established greenways create the opportunity for restoration of cultural and natural resources. Once a greenway is created, the resources within it receive increased protection from destruction or degradation. In many cases, these resources have suffered from previous adverse impacts. Through restoration, dammed streams can be restored to free-flowing streams; invasive exotic plants and remnants of historic mills can be restored. Because these areas are now preserved in perpetuity, the results of restoration are continually rewarding.[67]

The landscaping within the "Lei of Green" will bring nature onto Honolulu's streetscapes and will house Hawaiian native plants. The walkable greenway will help to preserve the waterfront areas and keep the parks/ sidewalks well maintained. Historic buildings along the route of the "Lei of Green" will be preserved. Information boards along the path will provide historical and cultural details about the many landmarks.

[65] Internet. "Chattahoochee River: Greenway Planning and Implementation Handbook: Introduction". Jordan Jones & Goulding. Fall 2010. Pages 3-4. http://www1.gadnr.org/greenspace/c_index.html
[66] Internet. "Chattahoochee River: Greenway Planning and Implementation Handbook: Introduction". Jordan Jones & Goulding. Fall 2010. Pages 3-4. http://www1.gadnr.org/greenspace/c_index.html
[67] Internet. "Chattahoochee River: Greenway Planning and Implementation Handbook: Introduction". Jordan Jones & Goulding. Fall 2010. Pages 3-4. http://www1.gadnr.org/greenspace/c_index.html

4. Protect Water Quality

Greenways also are used along streams and other water bodies to protect water quality. They prevent disturbance adjacent to streams, especially direct runoff of sediment and chemicals into the river. The trees within the greenway provide shade on the water, which keeps the water temperature optimal for aquatic plants and animals. Greenways provide a vegetated buffer between land uses, such as agriculture and urban. The buffer of the greenway filters runoff from these areas, slowing down the waters velocity, filtering out sediment and chemicals and allowing time for the water to infiltrate into the ground. Greenways also improve air quality, stated in "Recreation and Transportation," due to promotion of alternative ways of transportation and keeping trails separated from vehicular traffic.[68]

(Not applicable for this "Lei of Green" project.)

5. Education

Greenways also provide an opportunity for environmental education. Educators can teach visitors about the natural and cultural resources in the greenway, including its ecosystems, history, and natural dynamics as well as the principles behind its creation.[69]

The "Lei of Green" will educate locals and visitors of important sites such as landmarks, historical sites, views that are important to Hawai'i and the Hawaiian culture. Information boards will display information, educating whoever stops to read. The boards will create an educational greenway for Hawai'i as well as place for recreation and means of transportation. The greenway will also serve to educate people of alternative methods of transportation and how it affects the environment positively.

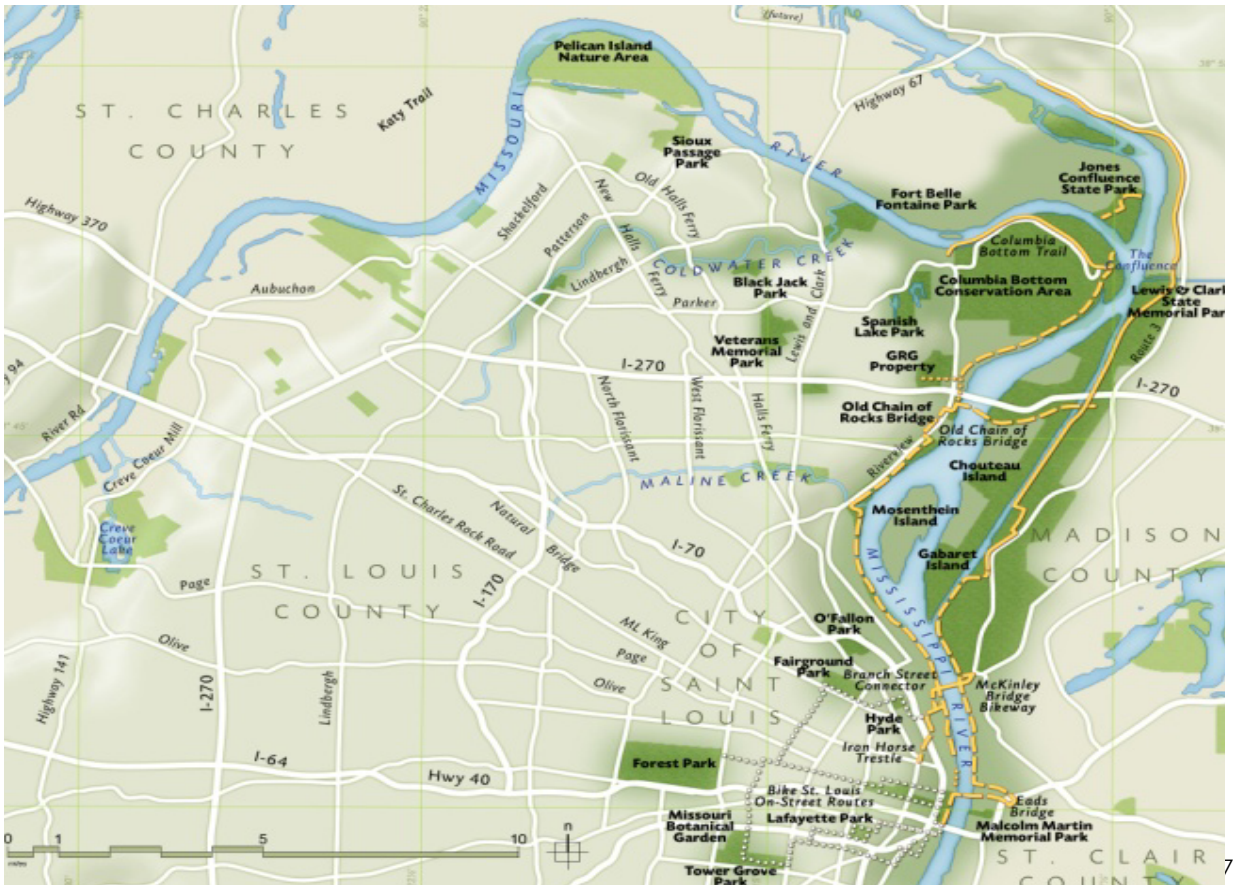
[68] Internet. "Chattahoochee River: Greenway Planning and Implementation Handbook: Introduction". Jordan Jones & Goulding. Fall 2010. Pages 3-4. http://www1.gadnr.org/greenspace/c_index.html
[69] Internet. "Chattahoochee River: Greenway Planning and Implementation Handbook: Introduction". Jordan Jones & Goulding. Fall 2010. Pages 3-4. http://www1.gadnr.org/greenspace/c_index.html

6. Connectivity

Publically accessible greenways travel through and link various communities, bringing community members together in a unique way. From greenway implementation, to maintenance, to the sharing of knowledge, involvement provides an opportunity for community members to get to know each other and to use the greenway as an important part of their community.[70]

Connectivity is an important aspect of the "Lei of Green." It is one of the main reasons for proposing the idea for the city of Honolulu. Gaps and separations, caused by transportation barriers, create dis-connectivity throughout Honolulu. This dis-connectivity creates barren sidewalks, less walking, more driving, and separation of communities. A greenway system will allow people to travel and connect to different communities in Honolulu, bringing community members together in a unique way which fits into the Hawaiian culture idea of diversity and "Spirit of Aloha." The greenways will be used to connect those separations and gaps between our parks, beaches, schools, landmarks and communities. The "Lei of Green" will create better accessibility to our parks, beaches, schools, landmarks and communities.

[70] Internet. "Chattahoochee River: Greenway Planning and Implementation Handbook: Introduction". Jordan Jones & Goulding. Fall 2010. Pages 3-4. http://www1.gadnr.org/greenspace/c_index.html



[71]

Image: Map of a Greenway


[72]

Image: Bicycle Path in Seattle

[71] Internet. "The Trestle – Great Rivers Greenway." Great Rivers Greenway. C2012. http://www.greatriversgreenway.org/projects/the-trestle.aspx

[72] Internet. "Fred Young, PLA, Landscape Architect." ALTA Planning Design. C2011. http://www.altaplanning.com/fred+young.aspx

WHAT ARE THE BENEFITS OF GREENWAYS?

Greenways have been proven to offer the following benefits:

- Environmental Improvements *(filtering air and water pollution, improving on the quality.)*
- Providing recreation, exercise and health benefits
- Alternative transportation, separated from vehicular traffic
- Linking neighborhoods with trails and parks to schools, community centers, amenities and other neighborhoods.
- Beautification
- Preserving Wildlife habitat and open space to enhance a communities quality of life
- Scenic protection
- Multi-purpose
- Economic development and property value enhancement

The opportunity to walk or ride a bike through a beautiful green space, alive with trees, grass and shrubs, will result in significant health benefits for citizens of all ages.[73] This is what I envision for Honolulu and a greenway will help bring these benefits to Hawaii, our people, environment and culture.

Image: East River Greenway Expansion Project in New York.[74]

[73] Internet. "What is a Greenway?" Detroit Eastside Community Collaborative Corner Creek Greenway. WordPress". http://www.connercreekgreenway.org/conner-creek-greenway/
[74] Internet. Girion, Will. "Resident's Show Support for Expanding NYC's East River Greenway." Sept 27,2011. http://inhabitat.com/nyc/residents-show-support-for-expanding-nycs-east-river-greenway/

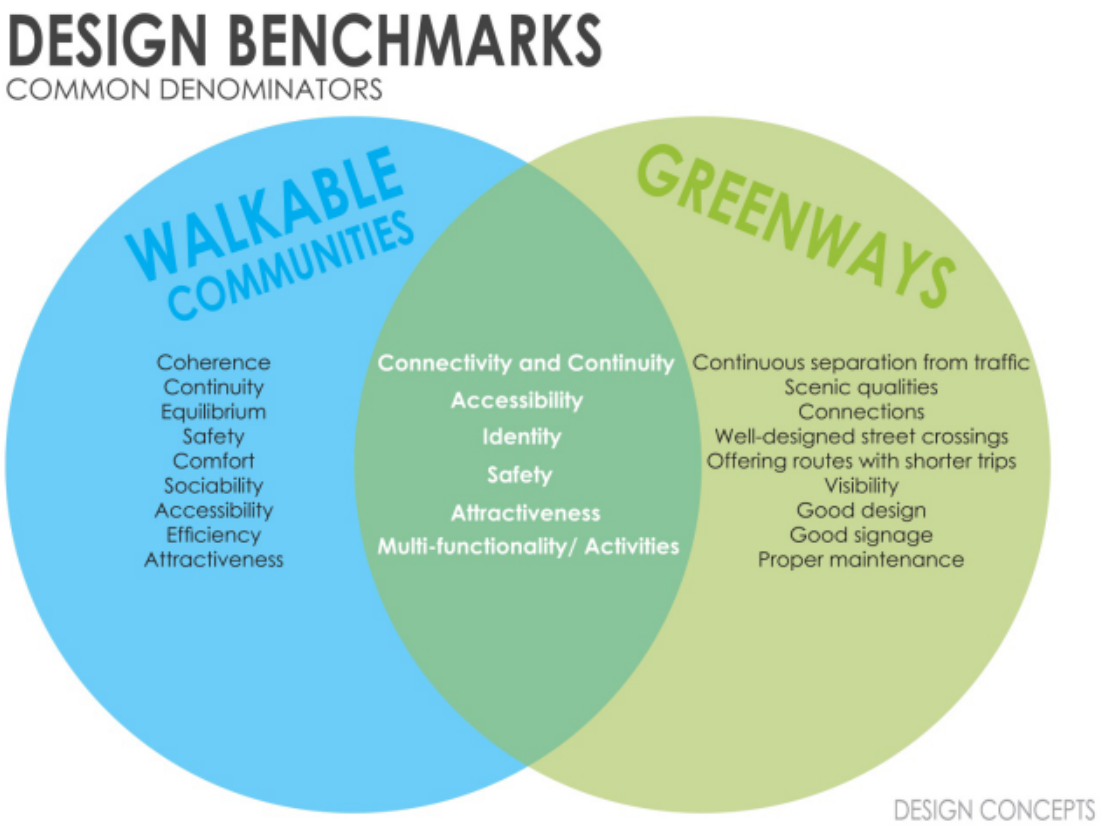
SUMMARY OF FINDINGS

Researching Greenways has helped to narrow down the design guidelines to be used in designing a greenway in the Honolulu area. The "Lei of Green" will be a greenway in Honolulu that will provide recreation and transportation, education, and connectivity. There are similarities of characteristics, features and benefits between Walkable Communities and Greenways that affect the user. These characteristics, features and benefits will form the design guidelines for the second part of my doctorate project, which includes designing a greenway throughout Honolulu that connects parks together, bridging the separation and gaps, creating alternative means of transportation for the city of Honolulu and bringing nature and landscaping to our streets.

DESIGN BENCHMARKS
WALKABLE + GREENWAYS

Researching Walkable Communities and Greenways, helped to determine what design elements, principles and benefits each has. When comparing both Walkable Communities and Greenways you begin to see similarities and relationships between the two. Using the similarities, design benchmarks can be formed. The design benchmark will carry throughout the doctorate project. The benchmarks will be used to relate to the two case studies, the personal experience segments and final design chapters of the doctorate thesis. Each of the case studies and personal experiences should fulfill each of the six benchmarks.

Note: Case Studies and Personal Experience segments are located in the Appendix.



By analyzing the common denominators of both Walkable Communities and Greenways chapters, I found six different design benchmarks that will be used to create final design criteria/ guidelines and program for the design portion of this project. The six different benchmarks to a successful walkable greenway in a community must have the following conditions: **Accessibility**, **Connectivity** and **Continuity**, **Identity**, **Safety**, **Multi-functionality/ Activities**, and lastly **Attractiveness**.

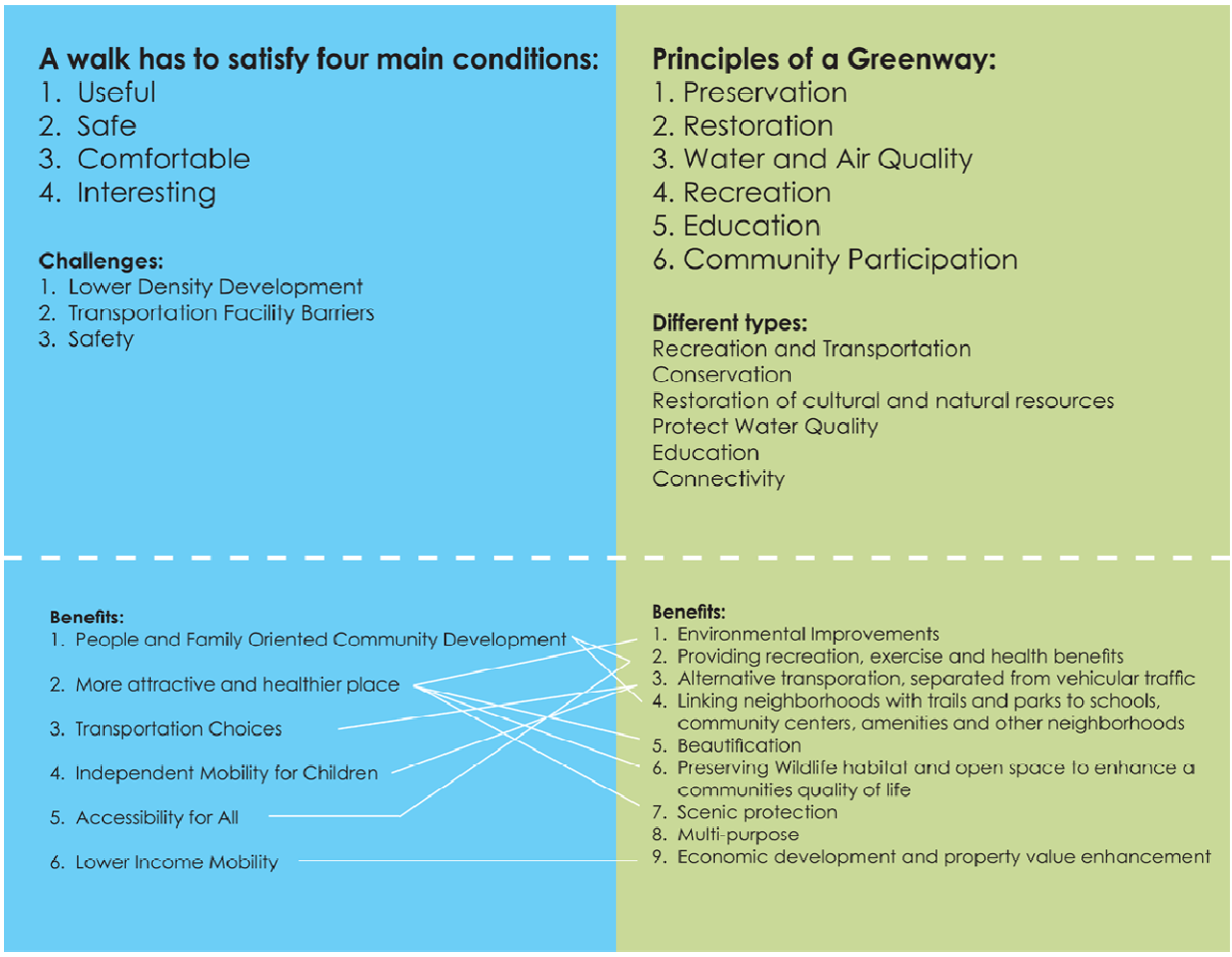


Image: The following diagram shows other analysis done when finding the six benchmarks.

"LEI OF GREEN" DESIGN CRITERIA

The topics for the research were chosen to analyze the work that has been done by others, National standards that relate to the "Lei of Green" design proposal, find different ways to show visual interpretations in an effective and powerful way and to understand main concepts (walkable communities and greenways) that will build and expand on the previous "Lei of Green" plan, created by the late Mr. Tom Papandrew.

Building on the shoulders of those who preceded us, set a foundation for these design guidelines and the vision for the "Lei of Green" research proposal. Analyses of previous works (the "Lei of Green" vision created by the late Tom Papandrew and the "Lei of Parks" Plan for Honolulu created by the Jeremy Harris Organization), created the opportunity to compare the design ideas of others with the vision of the "Lei of Green" proposal to find similarities and differences.

The LEED- Neighborhood Development research identified LEED Credits that related and could potentially qualify the "Lei of Green" proposal for LEED status. Additionally, the research with the LEED- Neighborhood Development contributed to design benchmarks that will be analyzed to develop design criteria for the "Lei of Green" proposal.

Examining the book, "The Image of the City" by Kevin Lynch provided the foundation for visual interpretation organization and diagrams that conveyed the idea for the "Lei of Green" proposal in the research and design segments.

The final parts of research focused on the topics of walkable communities and greenways. Each topic shared similarities that exemplify how they are unique, useful and important to the "Lei of Green" proposal. Researching both, walkable communities and greenways, achieved the understanding of both topics: what they are and what characteristics, design elements, and benefits each have. Comparison of the two, reveal common denominators that can work as guidelines and design criteria, when addressing and creating the "Lei of Green" design.

The following diagrams show the different design guidelines that will be used to find solutions to the gaps and separations, interruptions and un-friendly pedestrian walkways along the "Lei of Green". Each set of benchmarks shown in diagrams below were created by extracting the documented research elements, to find design guidelines and commonalities among each researched topic that will be used as the design criteria for the "Lei of Green" proposal. These design guidelines will encourage successful solutions to design impediments within the "Lei of Green" proposal.

DESIGN CRITERIA

The following are the different design guidelines that will be used towards the design implementation of the "Lei of Green" design segment.

- Lei of Parks
- LEED: Neighborhood Development
- Kevin Lynch's "The Image of the City" Five Elements
- Walkable Communities and Greenways

Note: Diagrams that follow are organized in the same order as the doctorate research document.

Image: The chart shows the design guidelines taken from "Lei of Parks" research that will be used towards the design implementation of the "Lei of Green" in the design segment of the doctorate thesis. The "Lei of Parks" research focuses on creating a bike friendly community within Honolulu and will be used to address the bicycle design aspects of the "Lei of Green" design proposal.

Image: The chart shows the design guidelines taken from "LEED: Neighborhood Development" research that will be used towards the design implementation of the "Lei of Green" in the design segment of the doctorate thesis.

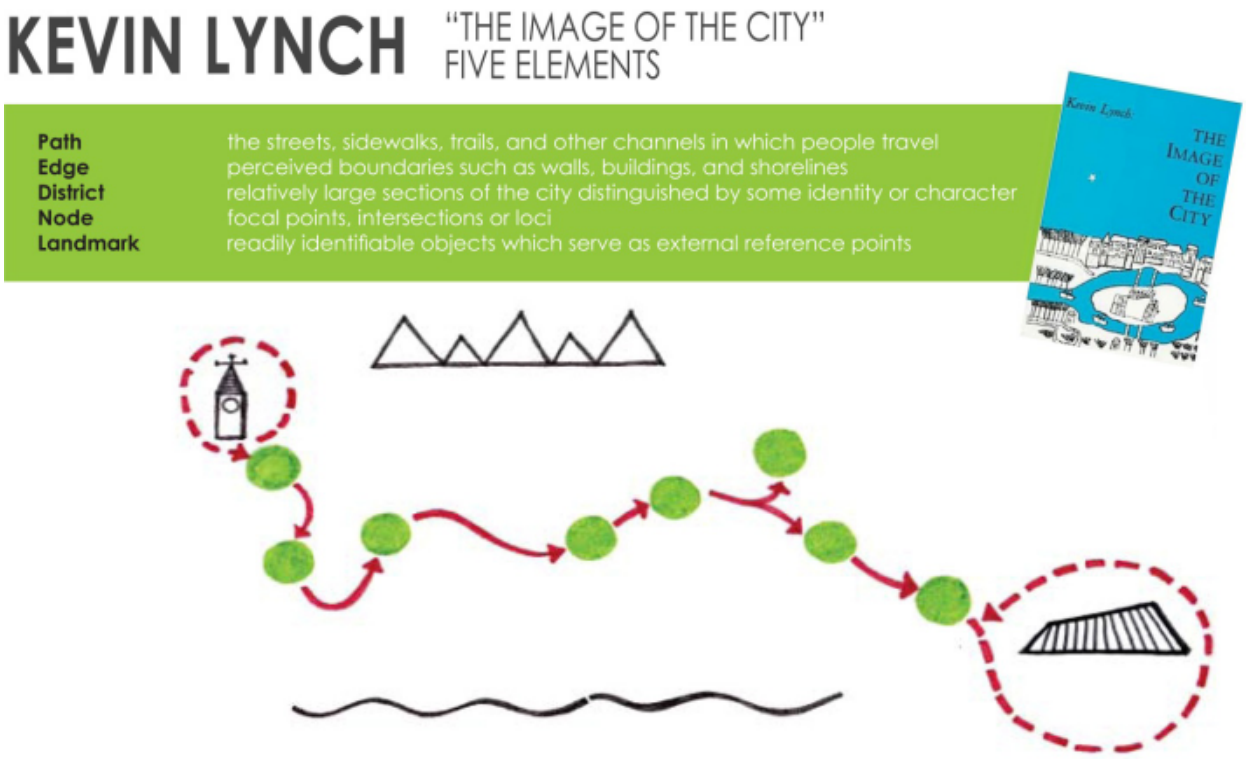


Image: The chart shows the design criteria taken from "The Image of the City" research that will be used towards the design implementation of the "Lei of Green" in the design segment of the doctorate thesis.

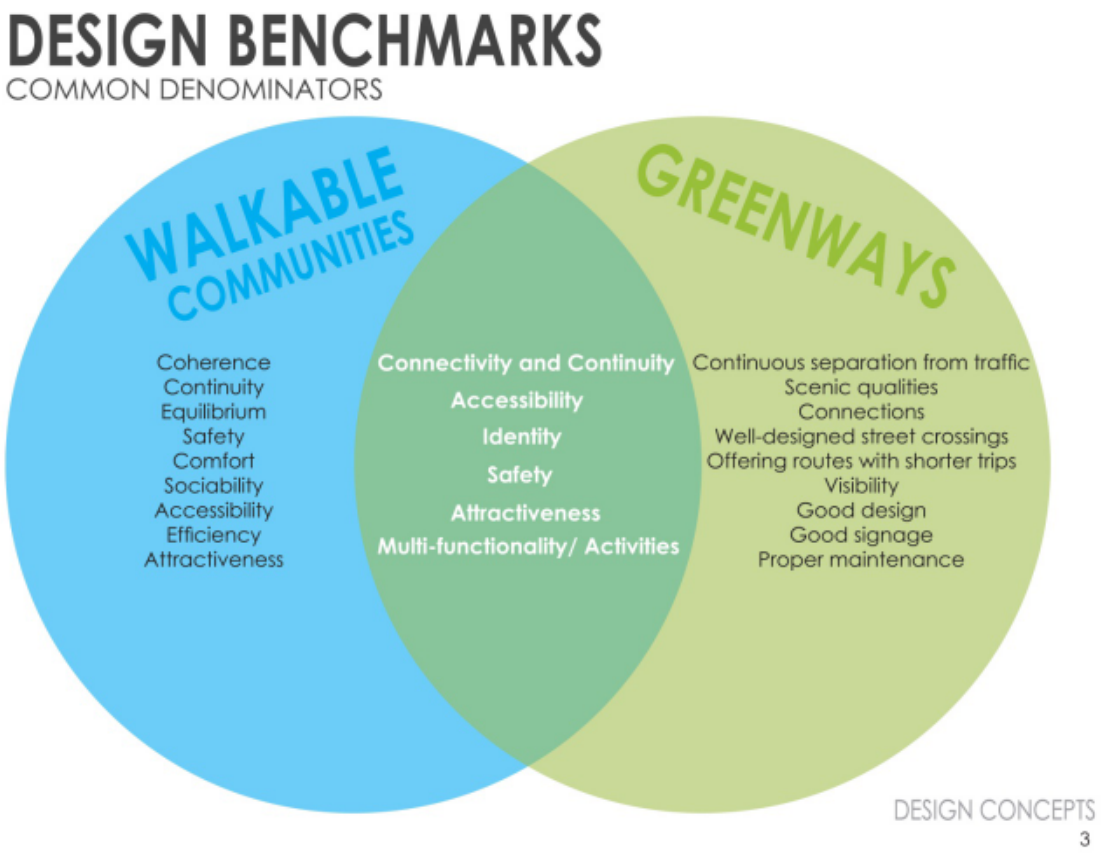


Image: The chart shows the design criteria taken from "Walkable Communities" and "Greenways" research that will be used towards the design implementation of the "Lei of Green" in the design segment of the doctorate thesis.

RESEARCH APPLICATION

PLANNING FOR A WALKABLE GREENWAY TO LINK HONOLULU BACK TOGETHER

The information gathered from the culmination of the previous chapters in this document provides the foundation for the next step to this project: the visual interpretation and analysis of the "Lei of Green" proposal. The combination of research of previous work done by others and the walkable greenway research provides a clear picture of the physical and social atmosphere within the "Lei of Green." Case studies and documentation of personal experiences on bike paths add to the vision and aesthetics of places within the "Lei of Green" design, through design elements and the ideas found in each element. Photo documentation, highlighting the places along the "Lei of Green", justifies the existing conditions and design impediments the "Lei of Green" faces. The diagrams in the research help to show the analysis and important information created from the research gathered for the "Lei of Green" proposal that will be extracted to form design criteria for the proposal's visual interpretation and design segment.

The most interesting thing about each of the five researched topics is that they are different in many respects, yet visually as a unified group, share certain similarities that exemplify how they are important and useful in the "Lei of Green" proposal. The next section takes the information gathered and applies it toward creating conceptual, visually-rendered solutions to specific design impediments selected from the "Lei of Green" proposal. This information is organized and composed in a booklet containing photographs, diagrams, maps and rendered graphic images of solutions to the design impediments in the "Lei of Green." The design segment will conclude this document, and open the window for other possibilities and discoveries.

By extracting data from the different elements of research, continuation of the doctorate study combines the existing site conditions of the impediments within the "Lei of Green" proposal, providing an in-depth understanding of the importance of planning improvements and solutions to separation gaps caused by transportation barriers. Additionally, this booklet serves as an informational guide for interested readers, in moving towards the main goal of this project: creating a walkable greenway system in Honolulu, that will help to sew Honolulu's disconnected urban fabric together, by linking the separation gaps, overcoming transportation barriers and connecting parks, beaches and landmarks, through a string of bike and exercise paths, creating walkable communities along the way. This doctorate study attempts to advocate and create a unique, walkable Honolulu and to fashion the "Lei of Green" pathway plan into a policy that can be effectively implemented and managed for many generations to come.

PLACES SEWN INTO THE "LEI OF GREEN"

The "Lei of Green" is intended to run from Aloha Tower to Diamond Head and the University of Hawai'i at Mānoa. Within these boundaries, there are paths that lead to UH Mānoa or to Diamond Head, that will pass through districts in Honolulu, such as Downtown, Kaka'ako, Ala Moana, McCully, Mō'ili'ili and Kapahulu. Within these paths are connections to landmarks such as parks, schools, beaches, shopping malls and other places of interest. The "Lei of Green" will run parallel to the edge of the Honolulu waterfront and up the Ala Wai Canal where it forks, to either go Mauka (mountain) to Mānoa or Makai (ocean) to Diamond Head.
This section will be an informational guide through the entire "Lei of Green." The following information describes the different parks, beaches, schools, landmarks and places of interest along the path and how each place relates to the "Lei of Green" pathway. (The following places are in the order of, experiencing the "Lei of Green," starting from Aloha Tower Marketplace and ending at Diamond Head).

Image: A conceptual map of the "Lei of Green" proposal. Start: Aloha Tower Finish: Diamond Head

ALOHA TOWER

Image: Aloha Tower Marketplace.[75]

This outdoor shopping mall is the start of the "Lei of Green" path and also a popular tourist attraction for its shopping, restaurants, views and ties to the waterfront culture of Honolulu. Aloha Tower is one of the famous iconic landmarks of Hawai'i and originally was built as a lighthouse in 1926 to help guide ships into the Harbor. Aloha Tower continues to be a guiding beacon of light that welcomes vessels to the Honolulu Harbor.[76] In the past, Aloha Tower greeted hundreds and thousands of immigrants to Honolulu. The Hawaiian Gothic architectural style building is 10 stories and 184 feet high, at one point of time, it was the tallest structure in all of Honolulu.[77] The Tower functions as a tourist attraction with an elevator that can take you up to the roof where you can enjoy the Honolulu waterfront views from every angle.

Aloha Tower Marketplace is the waterfront/ outdoor shopping center area that Aloha Tower sits next to. The Hawai'i Maritime Center and Falls of Clyde (two National Historic Landmarks) were once part of the Marketplace's activities but no longer open to the public. When both museums were open, Falls of Clyde (a boat museum) and Hawai'i Maritime Center both

[75] Internet. Image. "Experience the Marketplace." The Aloha Tower Marketplace: The Heart of Honolulu Website. Aloha Tower Market Place, c2013.
http://www.alohatower.com/marketplace-information/experience-the-marketplace/
[76] Internet. Wikipedia. "Aloha Tower." Wikipedia Foundation, INC. Last modified: May 8, 2013.
http://en.wikipedia.org/wiki/Aloha_Tower
[77] Internet. Wikipedia. "Aloha Tower." Wikipedia Foundation, INC. Last modified: May 8, 2013.
http://en.wikipedia.org/wiki/Aloha_Tower

focused on historic sailing as well as Polynesian sailing customs. Currently, the waterfront area where both closed museums still occupy, there are sunset ocean cruises that are part of the Marketplace's activities. This area too is where outrigger canoes dock if they come to Hawai'i.[78] The Marketplace is home to many stores and popular restaurants; it also has facilities that can hold big conventions.[79] Recently, Hawai'i Pacific University announced plans to modify the shopping center into a mixed-use facility, with retail, restaurant and meeting spaces, as well as second-floor HPU student-housing lofts.[80] In past years, Aloha Tower has suffered loss of customer base and is looking towards the HPU mixed-use project and adjacent parcels for survival. is scheduled for completion in 2015 and headed by "Group 70", a local Architecture Firm.[81]

LEI OF GREEN PROPOSAL

Aloha Tower, located in the Downtown district of Honolulu, is a major landmark and starting point of the "Lei of Green". Aloha Tower Marketplace will include bicycle rentals (BikeShares) and provide shopping and restaurants for residents and visitors to enjoy, before heading off on their "Lei of Green" adventure or after a long day out on the "Lei of Green". Well-designed Information boards will educate residents and visitors about the history and importance of this iconic landmark. The adjacent Hawai'i Maritime Center and Falls of Clyde (boat museum) are no longer attractions open to the public, but, there are plans to revive the museums. With help and support of the "Lei of Green" proposal, these two museums can re-open and be included on the "Lei of Green" pathway. From the Aloha Tower, you will then venture on down the Ala Moana Boulevard, to the next destination, Kaka'ako Waterfront Park.

[78] Internet. Wikipedia. "Aloha Tower Marketplace." Wikipedia Foundation, INC. Last modified: August 17, 2013. http://en.wikipedia.org/wiki/Aloha_Tower_Marketplace
[79] Internet. Wikipedia. "Aloha Tower Marketplace." Wikipedia Foundation, INC. Last modified: August 17, 2013. http://en.wikipedia.org/wiki/Aloha_Tower_Marketplace
[80] Internet. Wikipedia. "Aloha Tower Marketplace." Wikipedia Foundation, INC. Last modified: August 17, 2013. http://en.wikipedia.org/wiki/Aloha_Tower_Marketplace
[81] Internet. Wikipedia. "Aloha Tower Marketplace." Wikipedia Foundation, INC. Last modified: August 17, 2013. http://en.wikipedia.org/wiki/Aloha_Tower_Marketplace

KAKA'AKO WATERFRONT PARK


Image: The stairway leading to the ocean with kids playing in the water.[82] The Park's existing boardwalk.[83]

Kaka'ako Waterfront Park, also known as "Point Panic Park" is a free public park just off of Ala Moana Boulevard and at the end of Cooke Street.[84] It was opened in 1992 on a site of a former landfill and consists of 35 acres of open green space.[85] This park is known for its hills where people can grab a card board box and slide down like a sled. This park doesn't have a sandy beach but has a stairway to get to the ocean where people can swim and hang out.[86] There is a cement boardwalk on the perimeter of the park where people can walk and enjoy the waterfront views. The park has restrooms with showers, water fountains, free parking, picnic tables, pay phones, paved jogging paths, popular surfing spots, known as "Point Panic" and "Flies."[87] The park also has an amphitheatre area where concerts have taken place. The park is also located adjacent to the UH Manoa Medical School, The Cancer Research Center, the Children's Museum and an upscale restaurant called, "53 By the Sea." The Kaka'ako Waterfront Park is managed and owned by the Hawaii Community Development Authority.[88]

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[82] Internet. Image. Steiner, Keenan. "Obama Library Bid gets lobbyist donors." Sunlight Foundation: Reporting Group. October 14, 2013. http://reporting.sunlightfoundation.com/2013/obama-library-bid-gets-lobbyist-donors/

[83] Internet. Image. Wikipedia. "Kaka'ako Waterfront Park." Wikipedia Foundation, INC. Last modified: December 21, 2011. http://en.wikipedia.org/wiki/Kakaako_Waterfront_Park

[84] Internet. Wikipedia. "Kaka'ako Waterfront Park." Wikipedia Foundation, INC. Last modified: December 21, 2011. http://en.wikipedia.org/wiki/Kakaako_Waterfront_Park

[85] Internet. Wikipedia. "Kaka'ako Waterfront Park." Wikipedia Foundation, INC. Last modified: December 21, 2011. http://en.wikipedia.org/wiki/Kakaako_Waterfront_Park

[86] Internet. Wikipedia. "Kaka'ako Waterfront Park." Wikipedia Foundation, INC. Last modified: December 21, 2011. http://en.wikipedia.org/wiki/Kakaako_Waterfront_Park

[87] Internet. Wikipedia. "Kaka'ako Waterfront Park." Wikipedia Foundation, INC. Last modified: December 21, 2011. http://en.wikipedia.org/wiki/Kakaako_Waterfront_Park

[88] Internet. Wikipedia. "Kaka'ako Waterfront Park." Wikipedia Foundation, INC. Last modified: December 21, 2011. http://en.wikipedia.org/wiki/Kakaako_Waterfront_Park

LEI OF GREEN PROPOSAL

Kaka'ako Waterfront Park will become an exercise hub, where people can enjoy the use of outdoor exercise equipment, take in great views that the park has to offer, find places to sit and relax in the shade, have family fun days in the sun, jump into the ocean, drop a pole out to fish and much more. Kaka'ako Waterfront Park will provide playground equipment for children, restrooms with showers and changing areas for the "Lei of Green" and park users. The "Lei of Green" will run on the perimeter of the park, where there is an existing boardwalk. This plan will allow locals and visitors to continue experiencing the waterfront of Honolulu. Kewalo Basin is the next stop or destination, after experiencing and enjoying Kaka'ako Waterfront Park.

KEWALO BASIN

Image: Kewalo Basin.[89]

During Pre-European contact, the area was historically used for human sacrifice.[90] Now Kewalo Basin is a commercial boat harbor that serves as home to some of Honolulu's commercial fishing fleet, and charter and excursion vessels that serve the Hawai'i tourist market.[91] The ocean side of the harbor is a small beach park on the Honolulu waterfront that connects to Ala Moana Beach Park. This park is good for surfing, fishing, picnicking and sightseeing.

[89] Internet. Image. "Kewalo Basin." Panoramio. Google Maps and Google Earth. Uploaded by: Kandrade, June 3, 2007. http://www.panoramio.com/photo/2557082
[90] Internet. Wikipedia. "Kewalo Basin." Wikipedia Foundation, INC. Last modified: June 28, 2010. http://en.wikipedia.org/wiki/Kewalo_Basin
[91] Internet. Wikipedia. "Kewalo Basin." Wikipedia Foundation, INC. Last modified: June 28, 2010. http://en.wikipedia.org/wiki/Kewalo_Basin

LEI OF GREEN PROPOSAL

Kewalo Basin will be an area where people can bike down and enjoy the popular waterfront views and spot Hawai'i's very own surfers catching waves. Kewalo Basin is separated into two parts within the "Lei of Green." One part is located near the front of the Boat Harbor where the "Lei of Green" will run parallel to the waterfront, near the charter boat docks at the west end of the Harbor. This area will give people the opportunity to observe local fishing boats, hustling loads of their deep sea catch and schedule boat cruises. This area of Kewalo Basin will become a hub for local food trucks to park and serve delicious, local grown foods. Picnic tables and shaded places will be made available to the public to sit, eat and enjoy the scenery at Kewalo Basin. The second part of Kewalo Basin is the existing Kewalo Basin Park that is located at the south end tip of the Harbor. Kewalo Basin Park has places to sit and restrooms with outdoor showers. The park does not border sandy beaches, but has stairs that lead surfers to the rocky ocean entrance. This small beach park, frequented by local surfers, picnic goers and fishing enthusiasts, is a relaxing area with fewer crowds, unlike its neighboring Ala Moana Beach Park. This park will be a secondary route of the "Lei of Green" pathway. Information Boards along the pathway will explain the history of this harbor and beach park to locals and tourists.

ALA MOANA BEACH PARK

Image: Magic Island, the man-made peninsula that's apart of Ala Moana Beach Park [92]

Image: Waterfront shot of Ala Moana Beach park next to high rises. [93]

Ala Moana Beach Park is one of the most popular beach parks in Honolulu that attracts hundreds of sun bathers, swimmers, athletes and visitors from all over the world. In the 1920's Ala Moana Beach Park was once a wetland, brush area filled with Kiawe trees, coconut palms that later turned into a dump.[94] Years later, the dump eventually turned into a park and parts of the coral reef near the shore were dredged so that boats could go from the Ala Wai to Kewalo Basin.[95] This area where the coral reef was dredged is now a popular sandy bottom beach area with no rocks and a favorite of families with young children. During the development of Ala Moana Beach Park, Magic Island, the man-made peninsula that connects to Ala Moana Beach Park was built. Ala Moana Park spans 76 acres filled with beach goers, recreational sports and activities, families, fisherman, joggers and picnickers.[96] The long sandy beach of Ala Moana Beach Park is a major attraction for families with young children who normally go to the east end of the beach, where parking is plentiful and the ocean bottom is shallow and free of rocks.[97] The south shore's major surf spots that are found offshore from the reef include Big Rights, Concessions, Courts, Big Lefts, and Baby Hale'iwa.[98] Along the waterfront you will see fishermen dropping in their poles, joggers running the exercise path that goes around the park's perimeter, and occasional weddings and wedding photo shoots taking place. Ala Moana Beach Park

[92] Internet. Image. "Ala Moana Beach Park." HawaiiGaGa.com, c2008. http://www.hawaiigaga.com/oahu/beaches/ala-moana-beach-park.aspx
[93] Internet. Image. "Ala Moana Beach Park." HawaiiGaGa.com, c2008. http://www.hawaiigaga.com/oahu/beaches/ala-moana-beach-park.aspx
[94] Clark, John. "Beaches of Oahu – Revised Edition." University of Hawaii Press. Honolulu, c2005.
[95] Clark, John. "Beaches of Oahu – Revised Edition." University of Hawaii Press. Honolulu, c2005.
[96] Clark, John. "Beaches of Oahu – Revised Edition." University of Hawaii Press. Honolulu, c2005.
[97] Clark, John. "Beaches of Oahu – Revised Edition." University of Hawaii Press. Honolulu, c2005.
[98] Clark, John. "Beaches of Oahu – Revised Edition." University of Hawaii Press. Honolulu, c2005.

provides parking, picnic tables, restrooms, outdoor showers, and during certain hours, a concession stand caters to the beach park users.

LEI OF GREEN PROPOSAL

Ala Moana Beach Park will be one of the main exercise hubs along the "Lei of Green." This park will have outdoor exercise equipment, places to sit, eat, walk, run, bike, play or observe recreational sports. The park will also provide restroom areas, with outdoor showers for beach goers and also a shower facility for those pedestrians that use the "Lei of Green" (giving "Lei of Green users privacy to shower or change). Similar to the locker rooms at the 24 Hour Fitness or YMCA facilities, Ala Moana Beach Park will have its own locker rooms dedicated to the "Lei of Green" recreation users. Ala Moana will be a major access point for the pathway as the park is across the boulevard, fronting Ala Moana Shopping Center, Ward Centers and adjacent to Waikīkī. In the park will be another area for food trucks to park and serve tourists and locals who frequent the beach and use the "Lei of Green" pathway. Ala Moana Beach Park provides a secondary path that loops around the perimeter of Magic Island (the peninsula connected to the beach park) that provides great views of local surfers, fishermen, beach goers, showcasing the waterfront culture of Hawai'i. At the east end of the Ala Moana Park will be a pedestrian bridge that will take people over Ala Moana Boulevard to the next section of the "Lei of Green," the Ala Wai Canal Promenade.

ALA WAI CANAL

Image: Ala Wai Canal Panoramic View.[99]

The Ala Wai Canal is an artificial waterway that separates Honolulu from Waikīkī. The construction of the canal began in 1921 by Walter F. Dillingham Dredging Company and completed in 1928 to drain the rice paddies and swamps (in the areas now known as Waikiki) for development.[100] The Ala Wai was originally designed to have two outlets that would allow sedimentation to be flushed into the ocean.[101] Although this seemed like a good idea at first, the engineers decided not to build the eastern outlet (Kapi'olani Park and the Waikīkī Natatorium), when they determined that the contamination from that particular end would end up on Waikīkī Beach.[102] The Ala Wai serves as a drainage canal for rivers and streams that run through Honolulu.[103] The canal starts at the edge of Kapahulu, runs along the edge of Waikīkī and out to the Pacific Ocean, next to Ala Moana Beach Park.[104] Adjacent to the canal are the Ala Wai Golf Course, the Ala Wai District Park, The Hawai'i Convention Center and surrounding residential neighborhoods. Along the canal there are three bridges that connect Honolulu to Waikīkī on McCully Street, Kalakaua Avenue and Ala Monoa Boulevard.[105] Boaters and canoe paddlers frequent this canal daily regardless of the water quality of the Ala Wai that is poor and filled with chemicals due to run off from the streams that go through Honolulu neighborhoods.[106] There are existing pathways in certain areas along the north end of the Ala Wai but the main path that runs the whole length of Waikīkī runs along the south side of the canal.

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[99] Internet. Image. Wikipedia. "Ala Wai Canal." Wikipedia Foundation, INC. Last modified: September 2, 2013. http://en.wikipedia.org/wiki/Ala_Wai_Canal

[100] Internet. Wikipedia. "Ala Wai Canal." Wikipedia Foundation, INC. Last modified: September 2, 2013. http://en.wikipedia.org/wiki/Ala_Wai_Canal

[101] Internet. Wikipedia. "Ala Wai Canal." Wikipedia Foundation, INC. Last modified: September 2, 2013. http://en.wikipedia.org/wiki/Ala_Wai_Canal

[102] Internet. Wikipedia. "Ala Wai Canal." Wikipedia Foundation, INC. Last modified: September 2, 2013. http://en.wikipedia.org/wiki/Ala_Wai_Canal

[103] Internet. Wikipedia. "Ala Wai Canal." Wikipedia Foundation, INC. Last modified: September 2, 2013. http://en.wikipedia.org/wiki/Ala_Wai_Canal

[104] Internet. Wikipedia. "Ala Wai Canal." Wikipedia Foundation, INC. Last modified: September 2, 2013. http://en.wikipedia.org/wiki/Ala_Wai_Canal

[105] Internet. Wikipedia. "Ala Wai Canal." Wikipedia Foundation, INC. Last modified: September 2, 2013. http://en.wikipedia.org/wiki/Ala_Wai_Canal

[106] Internet. Wikipedia. "Ala Wai Canal." Wikipedia Foundation, INC. Last modified: September 2, 2013. http://en.wikipedia.org/wiki/Ala_Wai_Canal

LEI OF GREEN PROPOSAL - "THE PROMENADE"

The Ala Wai Canal will serve as a recreation corridor that connects to Ala Moana Beach Park, the Hawai'i Convention Center and the Ala Wai District Park. The existing Ala Wai Canal Promenade located on the Mauka (mountain) side of the Ala Wai Canal, will be for bike and pedestrian users. The promenade will be landscaped, to include places to sit with shade (from the large trees that currently exist along the canal), and places to snap photos of beautiful views, playground equipment for children and outdoor exercise equipment for path users. There will be information boards for direction and descriptions about sites along the canal. This will be a place that allows for people to relax and congregate.

ALA WAI COMMUNITY PARK

Image: Ala Wai Community Park.[107]

Ala Wai Community Park is a recreational space next to the Ala Wai Canal and next to the busiest streets in Honolulu, Kapi'olani Boulevard and Kalakaua Avenue. The park caters to sports-minded residents, with its many activities on the baseball fields and soccer fields and to the canoe paddlers, rowing up and down the canal. For the health enthusiasts, there is an existing walkway at the edge of the park. The views of Waikīkī from the park are timeless. The Park will include parking and restroom areas. On the east end of the park, there are pending plans to create a dog park as another feature for residents.

[107]Internet. Image. "Ala Wai Canal." The Pineapple Project. Written by: Ke'ehi Loio. December 1, 2010 http://thepineappleproject24.blogspot.com/2010/12/ala-moana-beach.html

LEI OF GREEN PROPOSAL - "THE CONNECTOR"

The Ala Wai Community Park will be a recreational hub for Honolulu, where there will be facilities for showering and changing and restrooms to support the people that will be venturing to this park from the "Lei of Green" path. The park is highly used for seasonal baseball and soccer games that take place on the fields. Pedestrians will have the opportunity to watch games or even take a breather, before continuing on the "Lei of Green" pathway. The Ala Wai Community Park pathway, located on the Mauka (mountain) side of the Ala Wai Canal, will include benches for people to sit, relax and view Waikīkī (located on the other side of the Ala Wai Canal) as well as the local canoe paddlers. This area will also be the node connector where you can travel up the pathway to UH Mānoa or continue down the Canal towards the Ala Wai Golf Course, Kapi'olani Park and Diamond Head, or have the option of heading back to Ala Moana Park and Aloha Tower. Another consideration for the "Lei of Green" is to build a pedestrian bridge across the Ala Wai Canal, connecting the Mauka (mountain) side of the Ala Wai to the Waikīkī side. The pedestrian bridge will provide a safe, walkable connector to Waikīkī or to to Kapahulu Avenue.

THE UNIVERSITY OF HAWAIʻI AT MĀNOA


Image: UH Mānoa Campus. [108] Image: UH Mānoa. [109]

The University of Hawaiʻi at Mānoa is located in Mānoa, an affluent neighborhood of Honolulu and is approximately 3 miles east and inland from Downtown and one mile from Ala Moana and Waikīkī.[110] UH Mānoa is a public, co-educational, research University that occupies the eastern part of Mānoa Valley.[111] Total enrollment in 2012 was 20,429 students, 14,402 of which are undergraduates.[112] The University consists of four Colleges of Arts and Science, The College of Tropical Agriculture and Human Resources, along with the College of Business, School of Architecture, Engineering, Education, Hawaiian Studies and much more.[113] UH Mānoa is also home to three of the prominent professional schools in the state, The William S. Richardson School of Law, the John A. Burns School of Medicine and the School of Architecture.[114] Together, all the colleges of the University offer bachelor degrees in 93 fields of study, master degrees in 84 fields and doctoral degrees in 51 fields, first professional degrees in 5 fields, post-baccalaureate degrees in 3 fields, 28 undergraduate certification programs and 29 graduate

[108]Internet. Image. Wikipedia. "University of Hawaii Manoa." Wikipedia Foundation, INC. Last modified: October 14, 2013. http://en.wikipedia.org/wiki/University_of_Hawai%CA%BBi_at_M%C4%81noa
[109] Internet. Image. Wikipedia. "University of Hawaii Manoa." Wikipedia Foundation, INC. Last modified: October 14, 2013. http://en.wikipedia.org/wiki/University_of_Hawai%CA%BBi_at_M%C4%81noa
[110] Internet. Wikipedia. "University of Hawaii Manoa." Wikipedia Foundation, INC. Last modified: October 14, 2013. http://en.wikipedia.org/wiki/University_of_Hawai%CA%BBi_at_M%C4%81noa
[111] Internet. Wikipedia. "University of Hawaii Manoa." Wikipedia Foundation, INC. Last modified: October 14, 2013. http://en.wikipedia.org/wiki/University_of_Hawai%CA%BBi_at_M%C4%81noa
[112] Internet. Wikipedia. "University of Hawaii Manoa." Wikipedia Foundation, INC. Last modified: October 14, 2013. http://en.wikipedia.org/wiki/University_of_Hawai%CA%BBi_at_M%C4%81noa
[113] Internet. Wikipedia. "University of Hawaii Manoa." Wikipedia Foundation, INC. Last modified: October 14, 2013. http://en.wikipedia.org/wiki/University_of_Hawai%CA%BBi_at_M%C4%81noa
[114] Internet. Wikipedia. "University of Hawaii Manoa." Wikipedia Foundation, INC. Last modified: October 14, 2013. http://en.wikipedia.org/wiki/University_of_Hawai%CA%BBi_at_M%C4%81noa

certification programs.[115] UH Mānoa is located next to an up and coming college town in Mō'ili'ili called "Pucks Alley" and is home to a great number of sports programs (football, women's volleyball, baseball, women's soccer, and others).

LEI OF GREEN PROPOSAL - "THE MĀNOA PATHWAY"

UH Mānoa will be a major point of interest along the "Lei of Green" pathway that will be one of two destination points. The UH Mānoa pathway route will cater to students at the University or nearby high schools and elementary schools. The path will also service people who live in the Mānoa and Mō'ili'ili areas. From the Ala Wai Community Park, a pedestrian could walk or bike up University Avenue into the UH Mānoa Campus. Students from the University can get to many places in Honolulu, by foot or by bike without having to use a car with the "Lei of Green".

The University of Hawai'i will have a "BikeShare" that caters and shares with other "BikeShares" along the "Lei of Green", where one can drop off a bike and walk as one chooses. For example, San Francisco has bike rentals that allow a user to pick up their bike at Fisherman Wharf and drop off the bike at any of the other two rentals (Embarcadero and The Golden Gate Park) within the San Francisco area, instead of returning the bike to Fisherman's Wharf. Honolulu is in the process of implementing "BikeShare" (Honolulu's "BikeShare" Plan is located in the Appendix). Additionally, a proposal for a pedestrian/bicycle bridge going over the Ala Wai Canal can connect University Avenue to Ala Wai Boulevard in Waikīkī, thereby, offering more walking options and destinations for users.

[115] Internet. Wikipedia. "University of Hawaii Manoa." Wikipedia Foundation, INC. Last modified: October 14, 2013. http://en.wikipedia.org/wiki/University_of_Hawai%CA%BBi_at_M%C4%81noa

KAPI‘OLANI DISTRICT PARK

Image: Kapi‘olani District Park, looking towards Diamond Head.[116]

Kapi‘olani Regional Park is the largest and oldest public park in Hawai‘i, located at the end of Waikīkī, next to the iconic Diamond Head Crater.[117] Next to Kuhio Beach Park its 300 acres and home to the Waikīkī Shell, Honolulu Zoo and the Honolulu Aquarium.[118] The Park was name after Queen Kapi‘olani, the queen of King David Kalākaua.[119] At one point in time Kapi‘olani Park was a marsh with a big pond that was later in-filled to make a horse track and later cricket fields.[120] The Park provides tennis and basketball courts, soccer, baseball, lacrosse and rugby fields and an archery range.[121] Its bandstand serves as an entertainment venue.[122] This park is a popular place for joggers who run the 2 mile loop around the park.[123] The park also serves as the site for both, starting and finish lines, of marathons such as the Honolulu Marathon.[124]

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[116] Internet. Image. Smith, Kevin. “Queen Kapiolani Park.” Fine Art America. April 30, 2010. http://fineartamerica.com/featured/queen-kapiolani-park-kevin-smith.html
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LEI OF GREEN PROPOSAL - "KAPI'OLANI PARK"

Kapi'olani Park will be the last major exercise hub along the "Lei of Green" proposed greenway. Kapi'olani Park already has existing bathrooms, parking, outdoor exercise equipment (located around different parts of the park) and jogging path. The "Lei of Green" will connect to the existing jogging path and utilize the existing facilities that the Park provides. The existing pedestrian pathway will remain and designing a new bicycle path to connect to the pedestrian pathway is needed to create a mixed-use path where bicyclist and pedestrians can co-exist safely and comfortably. The "Lei of Green" path is not intended to have bicycles and pedestrians on the same path but separated using the existing bicycle and pedestrian walkways encompassing the park. With the "Lei of Green" plan, more outdoor exercise equipment and seating areas that are shaded will be placed around the park. This park will also include a shower facility that caters to the joggers and people that exercise on the path. The park will also serve as access points for residential areas to get onto the pathway system and allow people to visit the Honolulu Zoo, aquarium and beaches.

KAPI‘OLANI COMMUNITY COLLEGE

Image: Kapi‘olani Community College Campus aerial view.[125]

Kapi‘olani Community College is a public co-educational commuter college in Honolulu Hawai‘i located on the slopes of Diamond Head in Waikīkī/ Kapahulu.[126] Kapi‘olani Community College is one of the ten braches of the University of Hawai‘i system anchored by the University of Hawai‘i at Mānoa.[127]

[125] Internet. Image. “KCC Aerial Shots.” SmugMug Inc., c2013. http://hawaiimemory.smugmug.com/Other/KCC-Aerial-hots/16399064_cMMmhf#!i=1233434625&k=3LZ8b5k
[126] Internet. Wikipedia. “Kapi’olani Community College.” Wikipedia Foundation, INC. Last modified: July 15, 2013. http://en.wikipedia.org/wiki/Kapiolani_Community_College
[127] Internet. Wikipedia. “Kapi’olani Community College.” Wikipedia Foundation, INC. Last modified: July 15, 2013. http://en.wikipedia.org/wiki/Kapiolani_Community_College

LEI OF GREEN PROPOSAL - "THE DIAMOND HEAD PATHWAY"

Similar to the UH Mānoa pathway, the Diamond Head pathway connects to another educational facility, Kapiʻolani Community College. Since Kapiʻolani Community College connects to the "Lei of Green" pathway it will encourage college students and residents to use the pathway system. The Culinary Institute of the Pacific (CIP) at Diamond Head is an educational facility located on the KCC campus that will benefit from the "Lei of Green" and vice versa. Located on the Kapiʻolani Community College Campus is ʻŌhiʻa Cafeteria a spacious campus dining center for students and the public. The cafeteria offers a wide selection of food and beverage items at decent prices and run by students who participate in the culinary arts program at KCC. The cafeteria is open on weekdays from 7:00am to 4:00pm. The ʻŌhiʻa Cafeteria will provide "Lei of Green" users a place to eat, drink and renew their energy after long walks or hikes. The "Lei of Green" can potentially bring more customers to the Kapiʻolani Community College campus which can promote ʻŌhiʻa Cafeteria as eating spot in Honolulu.

Plans are in place for the CIP to build a new facility on the slopes of Diamond Head, where the old Canon Club was located. This new facility, designed for the new bachelor's program in culinary arts, will include classrooms, laboratories, culinary amphitheatre and a restaurant. CIP can be a future provider of eating places for the "Lei of Green" users.

Additionally, on Saturdays, KCC holds a popular Farmers Market where locals and tourists come by bus loads to seek out the many local vendors selling foods, plants, produce and crafts. Kapiʻolani Community College also has an outdoor exercise jungle gym and restroom located right off of Monsarrat Avenue that is available for "Lei of Green" users.

DIAMOND HEAD

Image: Diamond Head Crater, Hawaii. [128]

Diamond Head is a famous iconic symbol and landmark of Hawai'i. Diamond serves as a platform for antennas used for the U.S Government ad is closed to public, the crater's proximity to Honolulu and Waikīkī makes the rest of it's a popular destination.[129] Diamond Head has a hike that leads to the edge of the crater's edge, roughly 0.75 miles long.[130] This hike costs locals and visitors to enter now days and it is warned that the trail is not a casual one (mostly unpaved, winds, uneven rocks, ascends 74 steps, goes through an old tunnel and up a steep 99 steps that leads to a spiral staircase that continues up 43 more steps to a coastal artillery observation platform, built in 1908.[131] Views from Diamond Head run from the Eastside of Oahu all the way to the West, where you can enjoy great views of Waikīkī, Honolulu and Mauka areas.[132]

[128] Internet. Image. "Diamond Head Crater." Sip Advisor: The Good, the bad & the Bubbly. Blue Hawaiian. WordPress, September 20, 2013. http://thesipadvisor.com/tag/diamond-head/
[129] Internet. Wikipedia. "Diamond Head, Hawaii." Wikipedia Foundation, INC. Last modified: October 16, 2013. http://en.wikipedia.org/wiki/Diamond_Head,_Hawaii
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[132] Internet. Wikipedia. "Diamond Head, Hawaii." Wikipedia Foundation, INC. Last modified: October 16, 2013. http://en.wikipedia.org/wiki/Diamond_Head,_Hawaii

LEI OF GREEN PROPOSAL

Diamond Head marks the end of one of the two "Lei of Green" pathways which wraps around the crater and sends a pedestrian back towards Honolulu. Diamond Head fits well into the "Lei of Green" as it is a landmark and a destination point along the pathway. This will give tourist and residents access to the park and create other options of traveling to the landmark rather than getting there by bus or car. The Diamond Head hike is a tourist attraction a pedestrian can do when reaching this destination or a pedestrian has the option to stroll along the Diamond Head cliff area that overlooks the famous Diamond Head Beach. Diamond Head is on the edge of Waikīkī and the Kahala community. There are some historic spots around Diamond Head and there will be information boards educating parkway users.

SUMMARY OF FINDINGS

This section is intended to give a reader background information on each place the "Lei of Green" will connect to and how each site relates to the proposed pathway system. You will find similar information in the Design segment of this doctorate project. The following key points of the "Lei of Green" were considered and incorporated into the "Lei of Green" design. These points will help to identify the problems and design issues that the "Lei of Green" proposal faces in the next section.

KEY POINTS OF THE "LEI OF GREEN"

- The "Lei of Green" will promote **health and recreation** for the residents and visitors of Honolulu.
- The main goal for the "Lei of Green" proposal is **Pedestrian Safety**.
- The main focus of the "Lei of Green" is **bridging gaps caused by transportation barriers**.
- Creating Walkable Communities within Honolulu will promote **alternative means of transportation** and **pedestrian friendly streets/ sidewalks**.
- **Education Boards of the Hawaiian culture, environment and landmarks** along the pathway are an essential way to share knowledge with locals and tourists that walk or bike on the "Lei of Green."

KEY POINTS OF THE "LEI OF GREEN" (CONTINUATION)

- With the landscaping, educational reference boards, outdoor recreation, pathway system that takes advantage of Hawai'i's cool, sunny weather, will evoke "**a sense of place**" that can only be experienced on the "Lei of Green."
- The "Lei of Green" will create **better access to parks, schools and landmarks for pedestrians**.
- Another goal for the "Lei of Green" is **beautifying** Honolulu's streets.
- With the growing rate of visitors in Hawaii, the "Lei of Green" will create another **tourist attraction** that promotes exercise, safety and education.

THINGS TO CONSIDER FOR THE "LEI OF GREEN"

Bicycles:

- The "Lei of Green" will need multiple bike rentals at various spots along the pathway.
- The "Lei of Green" will have "BikeSharing" where bikes can be shared with each rental shop associated with "BikeSharing" shops and a rider can drop off a bike at another location other than the one they rented the bike from.
- At each park and place of interest, there will be adequate bike storage for bicyclists to use.

Food:

- Food vendors (food trucks) and places to eat will be at different points along the "Lei of Green" where pedestrians can sit, relax and or grab a bite to eat.
- Food destinations along the "Lei of Green" will promote "Buy Local" and "Hawai'i Grown Food."
- Schools such as the Culinary Institute of the Pacific at Kapi'olani Community College and the future Diamond Head campus will provide food options to the "Lei of Green" users who venture out to the Diamond Head end of the greenway.
- "Farmers Markets" and "Eat The Street" will be a part of the "Lei of Green" during certain days of the week and months.

Restrooms and Shower Facilities:

- Restrooms will be at each park along the "Lei of Green."
- Certain parks will have shower facilities (including changing areas) that cater to "Lei of Green" users. A possible amenity that will need further researching is the availability of lockers and storage.

Streetscapes:

- Repair and improve pavement and widen pedestrian walkways/ sidewalks.
- Add trees.
- Add safer bike lanes to Honolulu's streets.
- Separate bike lanes from pedestrian sidewalks.
- Add landscaping and greenery to sidewalks (grass, shrubbery, green walls, etc.)
- Add signage along the "Lei of Green" for way-finding.
- Provide adequate lighting.

Parks and Open Spaces:

- Create Arterial Parkways in corridors next to the Ala Wai Canal that connect parks and keep pedestrians separated from vehicular traffic.
- Parks and open spaces along the "Lei of Green" will serve as harmonious meeting places for people.
- Children's playground and outdoor exercise equipment will be at each park and parkway along the "Lei of Green".
- Artwork of local artists and students will be displayed in the parks.

Pedestrian Bridges:

- Connects separated places together safely; Separates from vehicular traffic.
- Provide opportunities for view corridors of Honolulu.

CHALLENGE FOR THE "LEI OF GREEN" CONCEPT IMPLEMENTATION

SEPARATION GAPS IN HONOLULU

This doctorate project will address the challenges of private developer competition; issues with the Ala Wai Golf Course; the Department of Transportation and Parks and Recreation; gaining support and funding; and focus on the gaps and separations in Honolulu. Throughout the "Lei of Green" there are nodes (focal points, intersections and or loci) where transportation barriers intersect with the path. This causes design issues that need solutions in order to create a continuous path, separated from vehicular traffic. This section will identify the different nodes (focal Points, intersections and or loci) that need addressing and solutions at the edges (perceived boundaries such as walls, cuts, edges of development, buildings and shorelines) of the "Lei of Green" pathways.

DESIGN ISSUES WITHIN THE "LEI OF GREEN" PATH

A line across the map of Honolulu indicating the "Lei of Green" will encounter transportation barriers that separate and create gaps that disconnect certain parts of the Lei from others. Below are the areas identified as design issues (gaps and separations) that need resolution.

1. The stretch of sidewalk from Aloha Tower to Keawe Street in Kaka'ako Waterfront Park that runs along Ala Moana Boulevards Makai (ocean) side. Solution: This sidewalk will need to be a mixed-use pathway that allows for bicyclists and pedestrians.

2. The stretch of pathway that links Kaka'ako Waterfront Park to Ala Moana Beach Park. Solution: Find a route to connect the two parks that allows for mixed-use pathways.

3. The gaps and separations between Ala Moana Beach Park and the Ala Wai Canal sidewalk Promenade, located in the back of the Convention Center, caused by Ala Moana Boulevard. Solution: Propose a design that goes over or under the Ala Moana Boulevard Bridge that connects Ala Moana and Waikiki.

4. Addressing the three bridges along the Ala Wai Canal's existing walking path that cut off the path. The streets that cut off the path are Ala Moana Boulevard, Kalākaua Avenue and McCully Street.
Solution: Propose a design to get over or under each bridge that poses a barrier to the "Lei of Green" greenway.

5. Connect the Ala Wai Park to the Ala Wai Golf Course and create a pathway system that runs along the Ala Wai Golf Course, on the canal side.
Solution: Prepare a design to connect to the Ala Wai Golf Course from the Ala Wai Park and create a boardwalk at the edge of the golf course, on the canal side.

6. Improve the stretch from Ala Wai Park to UH Mānoa, using University Avenue.
Solution: Prepare a design that creates a safer environment for pedestrians and bikers on University Avenue.

7. Connect the Greenway from the Ala Wai Golf Course to Kapi'olani Park.
Solution: Propose a design to get pedestrians from the Ala Wai Golf Course with a safe, multi – use pathway to Kapi'olani Park.

8. Connect Kapi'olani Park to Kapi'olani Community College and Diamond Head.
Solution: Propose a design that encourages sidewalk improvement on Monsarrat Avenue and Diamond Head Road that is safe and comfortable for users.

Each design will include safety, comfort, useful function and interesting experiences that will fit the "Lei of Green" parameters and promote walking in Honolulu. These design issues will be addressed in the design segment of this doctorate project.

CONCLUSION

The LEI OF GREEN, REVISITING the DREAM" doctorate project turned out to be more than an ARCHD graduation requirement. This project has turned into a dream, of what needs to be done and preserved for the A'ina (the land), the generations of our diverse mix of people and the future of Hawai'i. What started out as an "if only" wishful thinking, after experiencing several amazing bike trips in California (recent practicum internship at Altoon Partners LLC), has evolved into a personal commitment to create a Santa Monica or San Francisco biking trip and experience for our island and its people.

It came as a surprise during the first month of my research, that my simple freehand greenway drawings mirrored the late Mr. Tom Papandrew's "Lei of Green" design. I was fortunate and grateful to have had an opportunity to communicate with Mrs. Papandrew, who sent me his original drawings. It was then, that I realized that the project topic was meant for me to work on.

Creating a workable design for a 'Lei of Green" requires much planning and research - understanding of the topography of the land, challenging design issues due to the current facilities/transportation barriers, borrowing ideas from successful greenways and walkable communities in other states, measuring up to LEED: Neighborhood Development Standards - all working together towards the goal of keeping Hawai'i, Hawai'i - a place where locals and tourists can connect with nature, in a clean sunny climate, and enjoy the outdoor exercise hubs and activities, in a safe, pollution-free and green environment.

Making a "Dream" into reality is the purpose of this project, Honolulu's "Lei of Green". This project design will bridge the future to our past and "create a supportive and nurturing environment, which cultivates economic growth, community health, and cultural awareness.

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INTERIM ACTION PLAN

Honolulu Bikeshare Organizational Study

October 2013

CITY AND COUNTY OF HONOLULU
STATE OF HAWAII

NELSON
NYGAARD

PROJECT OVERVIEW

In May 2012, a special Hawaii Clean Energy Initiative (HCEI) working group and the State Department of Health identified bikeshare as a key strategy for reducing vehicle miles traveled (VMT) and achieving healthy outcomes. This led to the creation of an ad-hoc Bikeshare Working Group with the goal of bringing a public bikeshare program to Honolulu.

Supported by this ad-hoc Bikeshare Working Group, the City and County of Honolulu funded a Bikeshare Organizational Study (launched in July 2013). The Bikeshare Organizational Study identifies the vision, goals, and objectives for bikeshare; engages key stakeholders; develops an organizational and governance strategy; creates a high level business plan; and develops an RFP to solicit a turnkey bikeshare contractor.

The City and County of Honolulu, the State of Hawaii, and a diverse set of public and private partners have collaboratively determined to implement a bikeshare system in urban Honolulu with the potential to expand the program to other cities and counties across the state.

The following interim action plan summarizes key organizational recommendations and outlines important action steps to realize the recommended organizational strategy.

What is bikeshare?

Bikeshare is a low-cost, flexible public transportation service that provides on-demand access to a network of publically-rentable bicycles. Public bicycles are distributed across a service area at fixed, destination-based station locations. With the ability to make point-to-point trips, bikesharing systems generally accommodate shorter trips that replace less efficient auto and transit trips (trip lengths average between 1 and 3 miles).

With over 30 systems operating to date in the United States and over one hundred more in planning or pre-implementation stages, bikesharing is the fastest growing form of public transportation in the United States. Not only is bikeshare transforming how people move around cities, it has demonstrated the ability to improve local environmental health, quality of life, public health, and economic activity, among other key urban livability indicators. No other form of public transportation is able to unlock such wide ranging benefits for the same modest level of capital and operating investment.

Image from DecoBike

ORGANIZATIONAL RECOMMENDATION

Based on a detailed evaluation of potential bikeshare organizational models, the consultant (Nelson\Nygaard) recommended implementation of an administrative non-profit structure.[1] This recommendation was based on several strategic advantages that could be gained under the administrative non-profit model, including:

- Ability to support future statewide bikeshare expansion
- Ability to secure public, private, and non-profit funding sources
- Focused liability risk assumed by a private turnkey operator, rather than local government or the non-profit bikeshare organization itself
- City and County and the State retain ability to influence station locations and other key decisions through a position on the non-profit's Board of Directors
- Opportunity to separate the bikeshare organization from existing political and public process barriers
- Ability to establish more focused roles related to operations (experienced private operator) and administration and mission achievement (assumed by the non-profit)
- Positive response from private and public sector stakeholders and key elected leaders

The recommendation for pursuing an administrative non-profit structure was presented to local stakeholders and received positive feedback and strong support.

BIKESHARE DEMAND AND SERVICE AREA

The consultant reported that, based on a preliminary demand analysis, urban Honolulu appears to be well suited to support a large public bikeshare system. They detailed a draft proposal for an initial system with a service area extending from Chinatown to Kapiolani Park, with a mauka boundary at the H1 freeway, plus the UH Manoa campus. The consultant's analysis determined that within this initial service area, between 140-180 stations and 1,400-1,700 bikes would be feasible in an initial roll out phase.[2] The graphics on the following page illustrate the proposed initial service area, including additional areas that were suggested by local stakeholders.

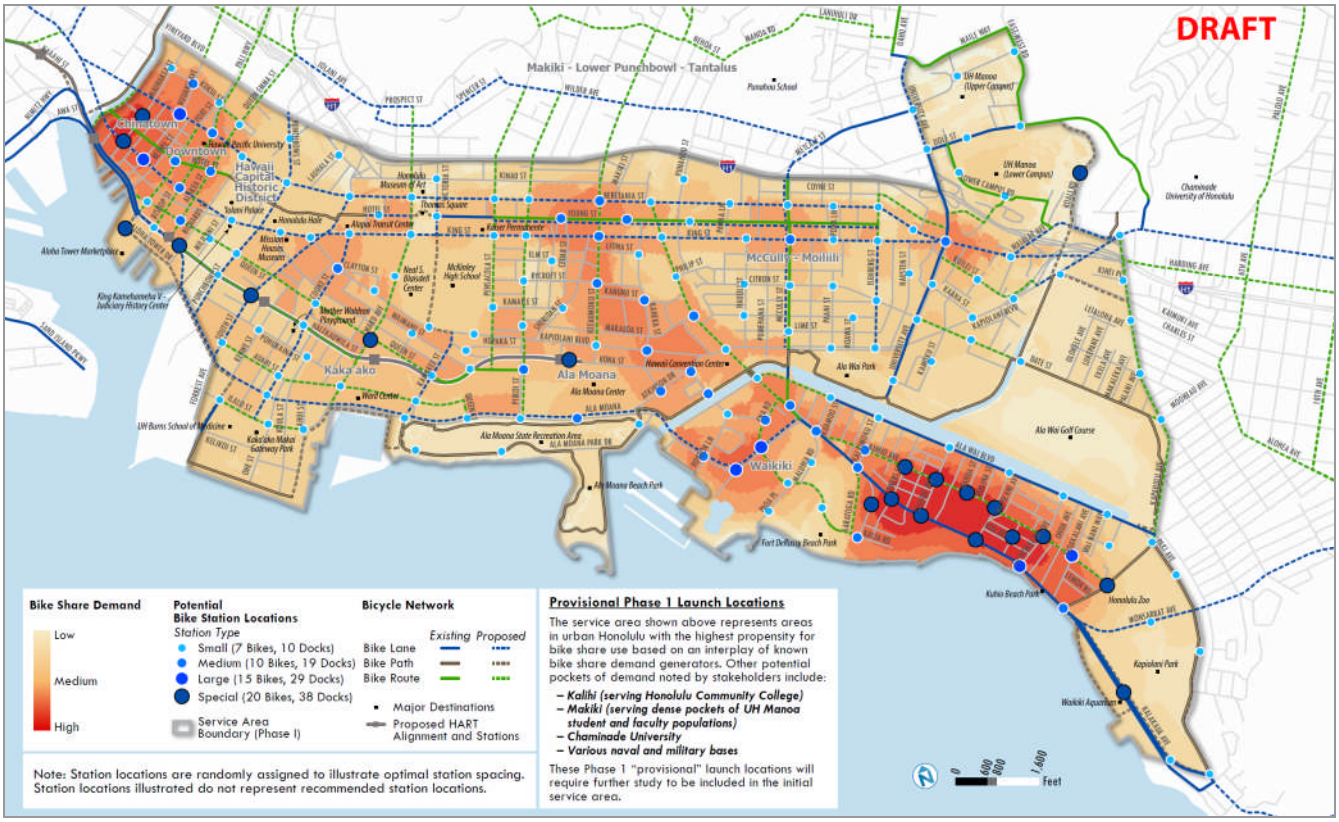
Based on the bikeshare demand analysis, proposed system size and service area, and system response to various land use characteristics and supportive features, the following revenue projections and system costs have been identified:

- Initial system capital costs of between $9.2 and $11.9 million (excluding the costs to start-up the non-profit that will manage the program)
- Annual operating costs will range between $2.9 and $3.2 million
- The system will generate between $4.4 and $6.3 million in user fee and subscription revenue in year 2 and beyond—enough to pay for operating costs and to provide capacity for system expansion

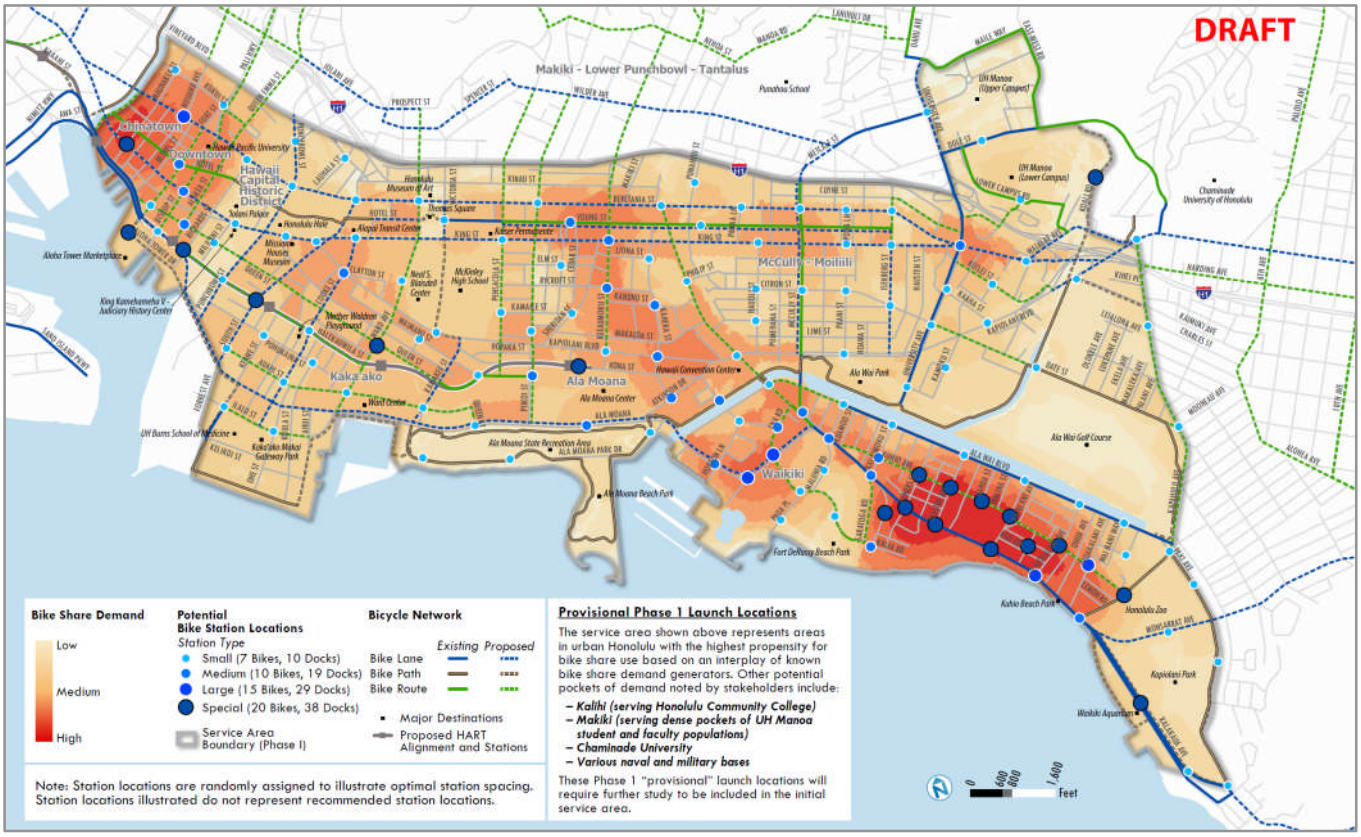
[1] See the Honolulu Bikeshare Organizational Assessment completed in October 2013 for the full organizational evaluation of a variety of possible organizational structures and detailed recommendations.

[2] NOTE: Because the evolving nature of the service area analysis, all figures and analysis results are draft and subject to change.

Phase 1 Service Area: OPTIMAL Density Scenario



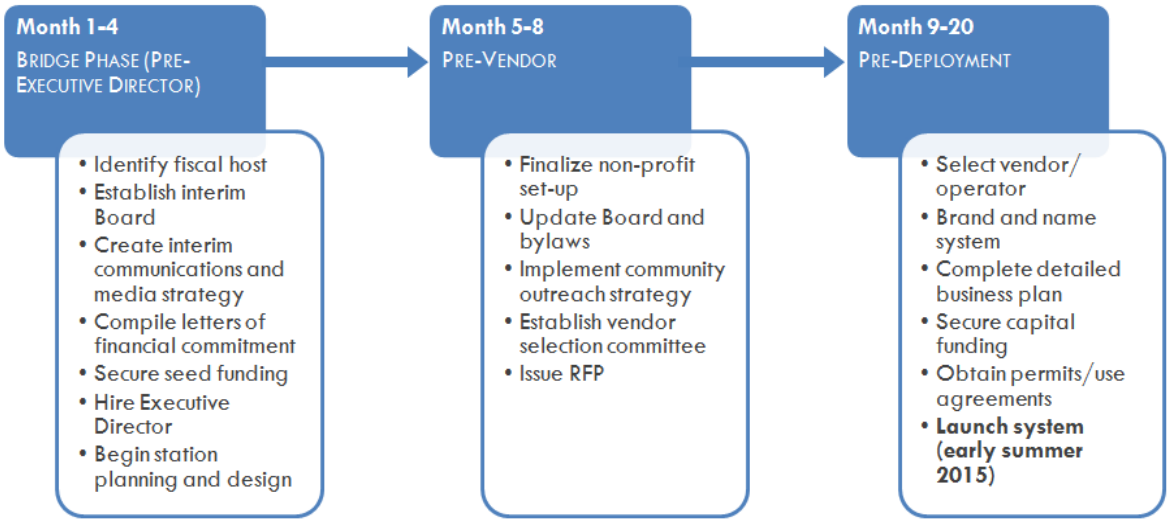
Phase 1 Service Area: MODERATE Density Scenario



BIKESHARE DELIVERY TIMELINE

An 18- to 24-month timeframe can be expected between now and system launch. The timeline illustrated below summarizes key events to complete over an aggressive 20-month schedule. The timeline is not comprehensive, but is meant to provide enough detail to convey the time and activities required to launch a bikeshare system. Additional details related to specific launch activities (website development, hiring, smart phone app development, station deployment, etc.) and post-launch activities (reporting, growth planning, securing future year funding, etc.) will be developed by the Executive Director and Board of the non-profit. If seed funding is secured prior to the December 2013 target date, the timeline can be expedited accordingly.

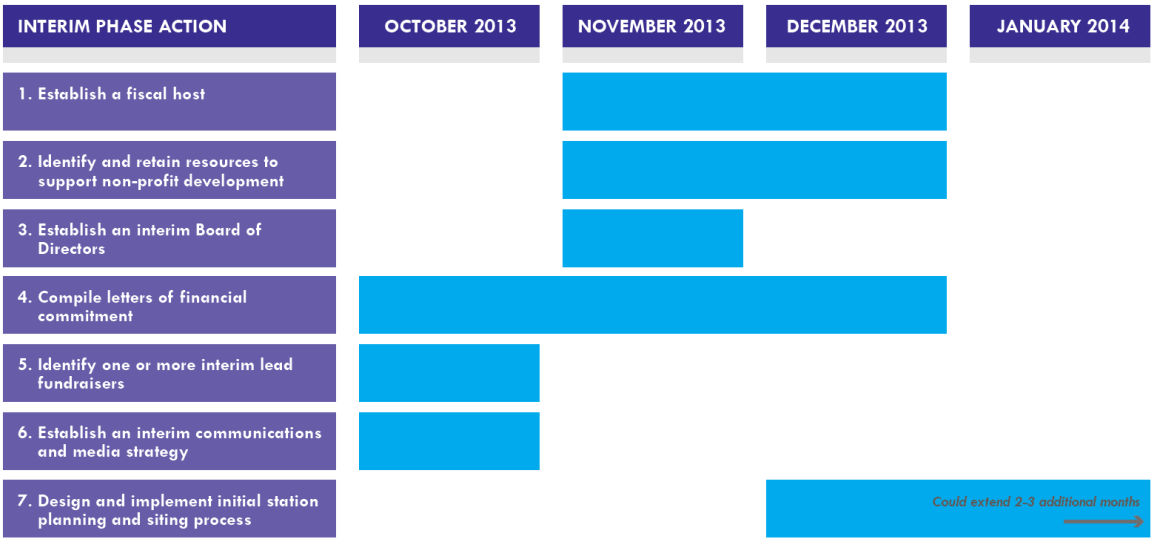
Figure 1 Honolulu Bikeshare Implementation Timeline



INTERIM ACTION PLAN

Key project stakeholders, including the City and County of Honolulu, State, and private sector leaders, agree that an Interim Phase is needed to move the current effort forward under the direction of the recommended administrative non-profit structure. The following represents the recommended interim action plan that will implement the accepted organizational recommendation of the Bikeshare Organizational Study and provide the funding and structure to complete subsequent phases of program development and funding. Several of the Interim Action Plan implementation items will overlap during the recommended three to four month timeframe. The following graphic provides a conceptual schedule for the Interim Phase action plan (*the Interim Phase is also called 'Bridge Phase' in diagram above*).

Figure 2 Interim Action Plan Timeline



1. Establish a fiscal host

The nascent bikeshare organization's lack of reputation or track record of handling funds is a potential barrier to securing early start-up capital – or "seed funding." To mitigate the possibility of potential funders shying away from sponsorship due to limited track record, we recommend selecting a highly reputable, local fiscal host for the new bikeshare non-profit. The fiscal host should be a non-profit with a civic mission and should serve in an interim administrative and accounting role. The primary role of the fiscal host is to ensure potential funders have a trusted and established non-profit to direct financial contributions to. This will build trust with funders and ensure tax benefits are realized expediently and are properly managed. The fiscal host could also provide physical office space for the future Executive Director. The fiscal host would ideally not require a fee for providing administrative and accounting services. Likewise, the fiscal host would not assume any control of bikeshare non-profit decision-making. The fiscal host arrangement would remain in place until such a time that the bikeshare non-profit Board of Directors determines that the organization is stable enough to assume full financial and administrative control.

Designating a fiscal host was deemed necessary by a range of private, public, and non-profit stakeholders to build confidence in the initial fundraising process. Several local non-profits are in good standing with the public sector, local businesses, foundations, and corporate interests. Based on a series of discussions, two organizations were identified as promising candidates to serve as the bikeshare organization's interim fiscal host.

Next Steps and Responsibility: Based on further discussions with local stakeholders, the consultants recommend that the Hawaii Pacific University Foundation assumes the responsibility of interim fiscal host. This recommendation is based on a variety of factors, including:

- Strength of reputation
- Support from Hawaii Pacific University's President
- Ability to leverage the University's technical capacity and pool of talent to create a future bikeshare research and evaluation partnership
- Availability of office space in the Aloha Tower

- General consensus from local stakeholders that Hawaii Pacific University could instill confidence in potential funders

2. Identify and retain resources to support non-profit development

Professional and organizational resources need to be secured, formed, or identified to support the development of the non-profit organization. Key supporting needs for the Interim Phase include:

- Securing pro bono legal services to help file for 501(c)(3) status and craft a working draft of the non-profit's bylaws (to be finalized by the non-profit's Board and Executive Director).
- Establishing a Government Support Working Group including representatives from the City and County of Honolulu, the State Office of Planning, the Department of Health, the Governor's office, and US EPA Region 9. The Working Group can provide support on items such as permitting and siting stations, media outreach, public sector funding development, and fare integration. The City and County have agreed to dedicate a significant number of public employee hours to coordinate issues regarding permitting and other activities required to expedite bikeshare program development.

Next Steps and Responsibility: The Government Support Working Group should meet on a regular basis to identify implementation challenges and brainstorm ideas for how to overcome these challenges. The group should also produce a work plan that can be used to prioritize implementation tasks and convey the public sector's in-kind support for bikesharing.

The Working Group should identify potential candidates for pro-bono legal support and begin contacting them by November 2013.

3. Establish an interim Board of Directors

An interim Board of Directors should be established to guide the development of the bikeshare non-profit. Critical roles for the Interim Board would be to finalize and approve non-profit bylaws, establish the working relationship with the fiscal host, hire an Executive Director, and begin early sponsorship discussions. The bylaws may be amended when the Executive Director is hired and the non-profit's new Board of Directors is selected. We recommend the Interim Board consist of five to seven representatives, including the Governor or appointee, the Mayor or appointee, and 3-5 representatives from the private sector, non-profit sector, or from another institution (such as a university). Established funders should be given priority on the Interim Board.

Next Steps and Responsibility: The Government Support Working Group should be convened in November to solidify the interim Board of Directors. Invitations for the Interim Board could be delivered jointly by the Offices of the Mayor and the Governor.

4. Compile letters of financial commitment

To document current financial and resource commitments to bikeshare implementation, the project team should secure letters of financial commitment from any potential funders that intend or have already committed funds toward bikeshare capital investment. Letters should be sought from the City and County, the State, and any private entity that has committed financial or resource support (or intends to request in future budgets). During initial funding meetings with local businesses, non-profits, and institutions, the following potential initial funding and support activities were identified:

- *State Department of Health:* $1 million from the department's portion of the tobacco settlement special funds have been set aside for bikeshare implementation

- *City and County of Honolulu:* The City and County may seek to add bikeshare capital funding in FY2015 (labeled as bikeshare implementation in the CIP language)
- *Health Care:* several health care organizations (including HMSA, Kaiser Permanente, and UHA) have expressed preliminary interest in various levels of sponsorship
- *Ulupono Initiative:* stated that they are willing to provide funding to help cover non-profit start-up costs (provided a clear roadmap for raising capital funding can be identified that includes significant public financial commitments)
- *UH Manoa:* has included funding for 2-3 stations in its FY2014 budget
- *Other local employers:* a number of major employers expressed substantial interest in purchasing or sponsoring bikeshare stations at the Health at Work Alliance monthly meeting in October
- *Local Solar Companies:* Several solar companies, including Sunetric and Sopogy, have expressed interest in station and title sponsorship; this is a potential major funding source particularly if there is opportunity to leverage their interest in controlling advertising space
- *Developer Support:* a number of large scale developers have expressed interest in funding stations at their developments and providing easements to facilitate bikeshare station access
- *Supportive Investment:*
  - The City and County of Honolulu DTS has included money for bicycle projects and Complete Streets implementation in their preliminary proposed FY2015 budget
  - The State Department of Health has potential funding available for initial media strategy planning and campaign (from the Injury Prevention and Healthy Hawaii Initiative programs)
  - The City and County of Honolulu and the State have committed to streamlining the permitting and environmental processes to facilitate the efficient siting and placement of bikeshare stations
  - The City and County of Honolulu is working on amending the zoning code to create TOD overlay zones along the planned rail corridor. As part of this process, they are studying strategies that would provide development incentives to developers in return for provision of community benefits, which could include providing bikeshare stations.

Next Steps and Responsibility: Based on this list of initial funding opportunities, project staff, under the direction of Jesse Souki and Mark Garrity, should begin seeking initial letters of commitment from the various responsible State, City and private entities that have expressed an interest in providing funding, or which have been identified as potential sources of funding (this task would be assumed by members of the Interim Board when established). Similar letters committing staff time to supporting permitting and siting efforts should also be provided.

5. Identify one or more interim lead fundraisers

To manage and extend the reach of Honolulu's bikeshare fundraising effort during the Interim Phase, fundraising discussions need to be limited to a few key individuals. Having someone from the private sector or a local foundation take over this role – preferably someone who would serve on the Interim Board of Directors – would help build confidence with other potential funders. This person/organization should be identified immediately and assigned to developing a basic business concept and supporting materials that can be used to secure "interim funding" on behalf of the interim Board and potentially larger sponsorships.

Next Steps and Responsibility: The following individuals are recommended to lead the interim fundraising effort:

- Ulupono Initiative should lead efforts to identify and engage the private sector and non-profit matching funds for their seed funding commitment. The group's close involvement in efforts to date should give them a good sense for the program and its opportunities. Ulupono Initiative would provide a reputable, non-government perspective that would be well received by other foundations or private businesses.
- Staff from the City and County's Department of Transportation Services (DTS), Department of Planning and Permitting (DPP), the State Department of Health, and others can provide Ulupono with needed organizational assistance and technical support.

6. Establish a communications and media strategy

During the Interim Phase, all media communication will be led by the City and County of Honolulu's communications director. Technical support can be provided by the City and County of Honolulu's Transit-Oriented Development (TOD) program, DTS, and Nelson\Nygaard. Messaging should be high level, focusing on the City and County's role in conducting an organizational study and business plan as well as the level of support and partnership between the Mayor and Governor. This message should remain until the Bikeshare Organizational Study is complete and the bikeshare non-profit and Board can become the "face" of the project to the media and the public.

Once the bikeshare non-profit Executive Director is hired and brought up to speed, he or she should lead all communications and media activities. This is critical to ensure the non-profit builds brand recognition, trust, and a rapport within the community and with potential funders. Likewise, channeling all future communication through the non-profit will create a consistent message that limits confusion as to which entity is leading the bikeshare program.

In addition, we recommend beginning community outreach after the non-profit is operating and has developed its own outreach strategy. This should ideally start in months 4 and 5 of the bikeshare program's implementation timeline. Outreach activities that should be considered include (but are not limited to):

- Mindmixer station location mapping (paid for by a grant won by HCDA)
- "Name your system" campaign
- "Design the bike" campaign (bicycle color and design elements)
- Twitter feed and Facebook page
- Website and blog development
- Interactive community workshops
- Pre-launch public service announcement and education campaigns

Next Steps and Responsibility: Per recent discussions with public sector staff, media communications should be led by the City and County of Honolulu communications director. The agreed upon communications and media strategy should be employed effective immediately.

7. Design and implement initial station planning and siting process

Station siting and outreach to local communities and property owners represents one of the most time intensive elements of the bikeshare implementation process. Rather than start this process when a turnkey operator is hired, the Executive Director and the Interim Board should work with the Government Support Working Group and assistance from a consultant to begin the process of

locating stations, right-sizing stations for land use and geometric constraints, conducting spatial planning in station vicinities, and developing concept designs for bikeshare station locations. In addition to these tasks, the planning work should identify potential impacts including parking loss, sidewalk furniture zone needs, and coordination with bike infrastructure. The technical team would need to include specialists in business engagement and education.

Next Steps and Responsibility: The City and County of Honolulu TOD program should develop scope language for the station planning and design work in November 2013. The planning work could begin in December 2013. Contracting this work through the bikeshare non-profit or the fiscal host should allow a relatively quick selection process relative to a public agency-led process.

WHAT WILL THE INTERIM PHASE COST?

Early demand analysis and revenue forecasts show that bikeshare should be supported by a stable operating budget once it is operational. However, early action steps in forming the non-profit represent a funding challenge. Basic non-profit infrastructure, staffing, and activities need to be established to begin the bikeshare implementation process, including fundraising. Funding for the Interim Phase needs to support:

- Executive Director salary
- Website design and programming
- IT and Systems
- General supplies and materials
- Travel and other expenses
- Legal fees
- Insurance
- Station location planning
- Community outreach

Based on detailed cost estimates, the Interim Phase will cost between $325,000 and $550,000. The high end of the cost range includes funds for station location planning and community outreach. These two activities are time and cost intensive and, thus, are recommended for completion earlier in the implementation process to meet the program's aggressive summer 2015 implementation timeframe.

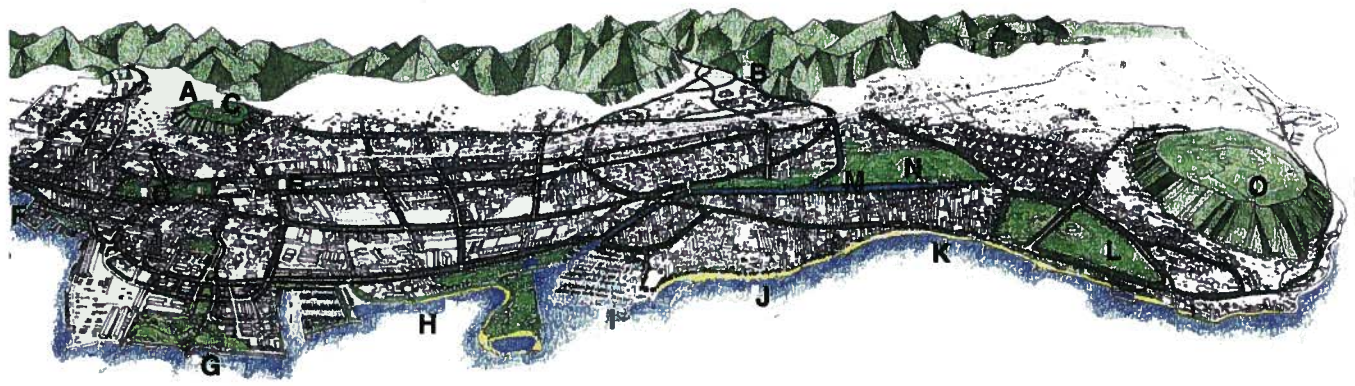
Founded in 1899, the American Society of Landscape Architects (ASLA) serves more than 14,000 members nationwide in public, private and academic practice. ASLA's purpose is the advancement of knowledge, education, and skill in the art and science of landscape architecture as an instrument of service for the public welfare. It is committed to advancing the understanding and awareness of the role of landscape architects in developing environments that are creative, inspiring, functional and enjoyable.

The Hawai'i Chapter of ASLA combines those commitments with issues and initiatives that are closer to home.

ASLA celebrated its 100th Anniversary in 1999 with the **100 Parks/100 Years** program. Landscape architects throughout the country commemorated this event by volunteering their time to support the beautification of their cities and towns with new park and open space projects. The Hawai'i Chapter of ASLA participated in an island-wide process to develop a community-based vision for the island of Oahu-the **"Lei of Green"**.

The "Lei of Green" will create an interconnected fabric of open-space, greenways, and parks and recreation areas throughout Oahu. The "Lei of Green" is Hawai'i's adaptation of the Boston parks system's **"Emerald Necklace."** The "Emerald Necklace" was planned and designed by landscape architects Frederick Law Olmsted and Charles Eliot in the late 19th century. It was the first integrated park system in the United States and has become the idealized model for many of our public park systems.

In 1938, the City of Honolulu Parks Commission hired renowned city planner, Lewis Mumford, to provide concepts and thoughts on the development of parks for the island of Oahu. He proposed a park system composed of open spaces that would extend *mauka* (mountains) to *makai* (ocean) and parallel to the shoreline. Like the "Emerald Necklace" in Boston, Mumford proposed linking the city parks and open spaces together using greenways with pedestrian paths following the natural drainage corridors from the mountains to the ocean. Within the urban areas, parkways and boulevards will interconnect the city parks with each other and extend to the natural landscape. The "Lei of Green" attempts to realize this early vision. It combines many plans for smaller projects previously prepared by Hawai'i's landscape architects.



LEGEND

A	Nuuanu Stream Greenways	H	Ala Moana Beach Park
B	Manoa and Palolo Stream Greenways	I	Ala Wai Yacht Harbor
C	Memorial National Cemetary of the Pacific (Punchbowl)	J	Waikiki
D	Capitol District	K	Kuhio Beach Promenade (See Image #7)
E	Thomas Square	L	Kapiolani Park, Waikiki
F	Nimitz Promenade (See Image #4)	M	Ala Wai Promenade (See Image #6)
G	Kakaako Waterfront Park	N	Ala Wai Golf Course
		O	Diamond Head State Monument (See Image #8)

The enclosed drawings are from our exhibit of the "Lei of Green." These exhibits were displayed at ASLA's annual meeting and centennial celebration in Boston in September, 1999. A copy of Hawai'i's exhibit was presented to the City and County of Honolulu to support long-range efforts to beautify Honolulu's urban and suburban environments and create higher quality open space and recreational opportunities for the local communities. Hawai'i ASLA members have been assisting various communities on Oahu to realize the "Lei of Green" concept.

Hawai'i Chapter of the American Society of Landscape Architects
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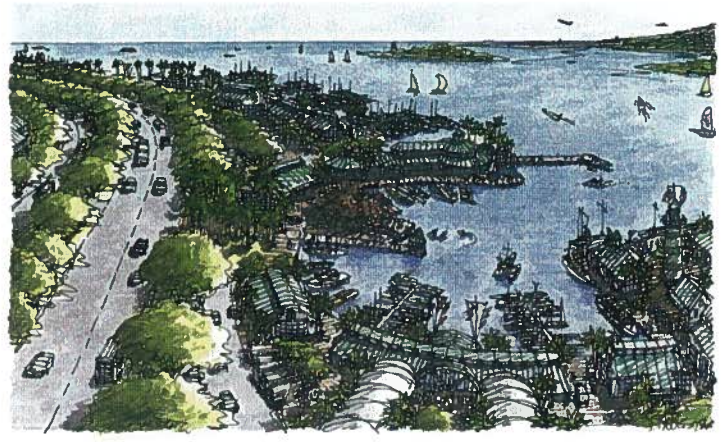
Lei of Green

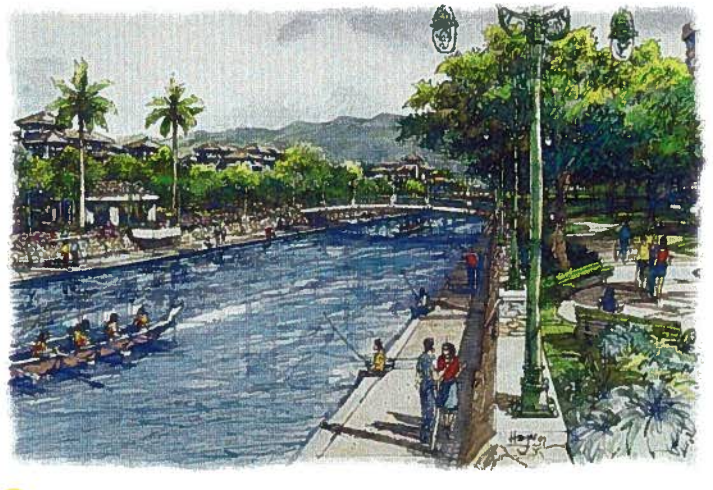
A plan for public greenbelts linking the natural, historic and cultural resources of Oahu. The plan connects the parks, shoreline access, stream greenways, parkways and tree lined roads of the island.

The "Lei of Green" plan is a gift to the citizens of Oahu.
The plan is being prepared and implemented by members of the
Hawai'i Chapter of the American Society of Landscape Architects

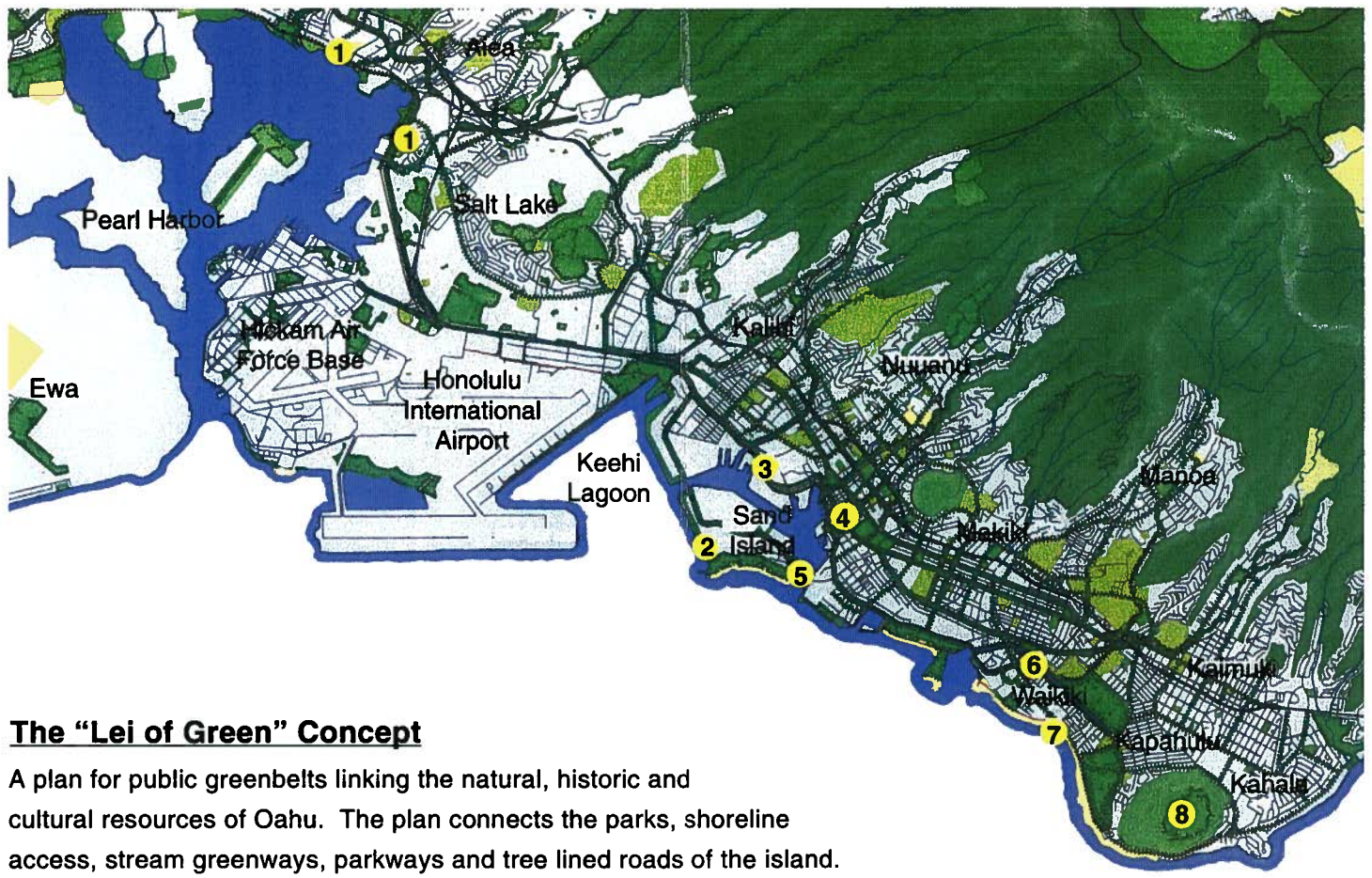
1 Pearl Harbor Historic Trail: The old Oahu Railway right-of-way adds 17 miles of greenway to the "Lei of Green." The route will feature a historic railroad operating from the USS Arizona and USS Missouri Memorials to the Ko'olina Resort. Biking and hiking trails will link cultural and historic destinations along the route. The trail will increase the amount of public access and views of the Pearl Harbor shoreline from Pearl City.



2 Sand Island Marina: The marina will provide shoreline access to Keehi Lagoon from Sand Island and will change the industrial warehouse area into an exciting public space creating a more positive image to its current industrial warehouse character.



3 Kapalama Canal Promenade: The Kalihi-Palama community will have pedestrian and bicycle access to the shoreline at Keehi Lagoon. The canal will be cleaned up, softened with landscaping and planted with trees for its users. Tree lined walkways along the canal will enhance the community.



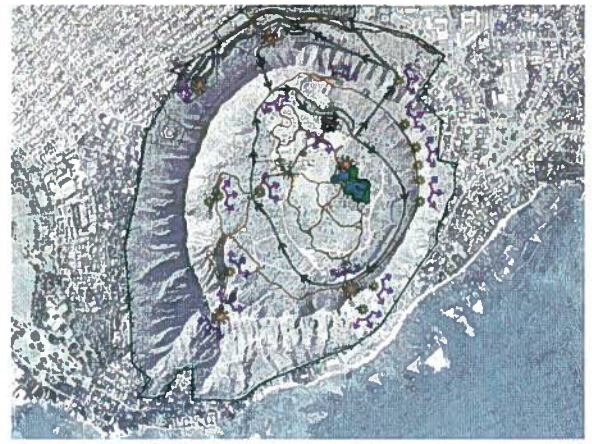
The "Lei of Green" Concept

A plan for public greenbelts linking the natural, historic and cultural resources of Oahu. The plan connects the parks, shoreline access, stream greenways, parkways and tree lined roads of the island.

4 Nimitz Promenade: Nimitz Highway right-of-way will be divided in half to create a waterfront promenade. The waterside of the right-of-way will be used for shoreline access and commercial development. The landside will be converted into an urban parkway.

5 Sand Island Parkway: This new parkway will connect the Nimitz Promenade to Sand Island State Park. It will become the primary access road into downtown Honolulu from the airport via a new harbor tunnel that will connect to the State's redevelopment area of Kakaako.

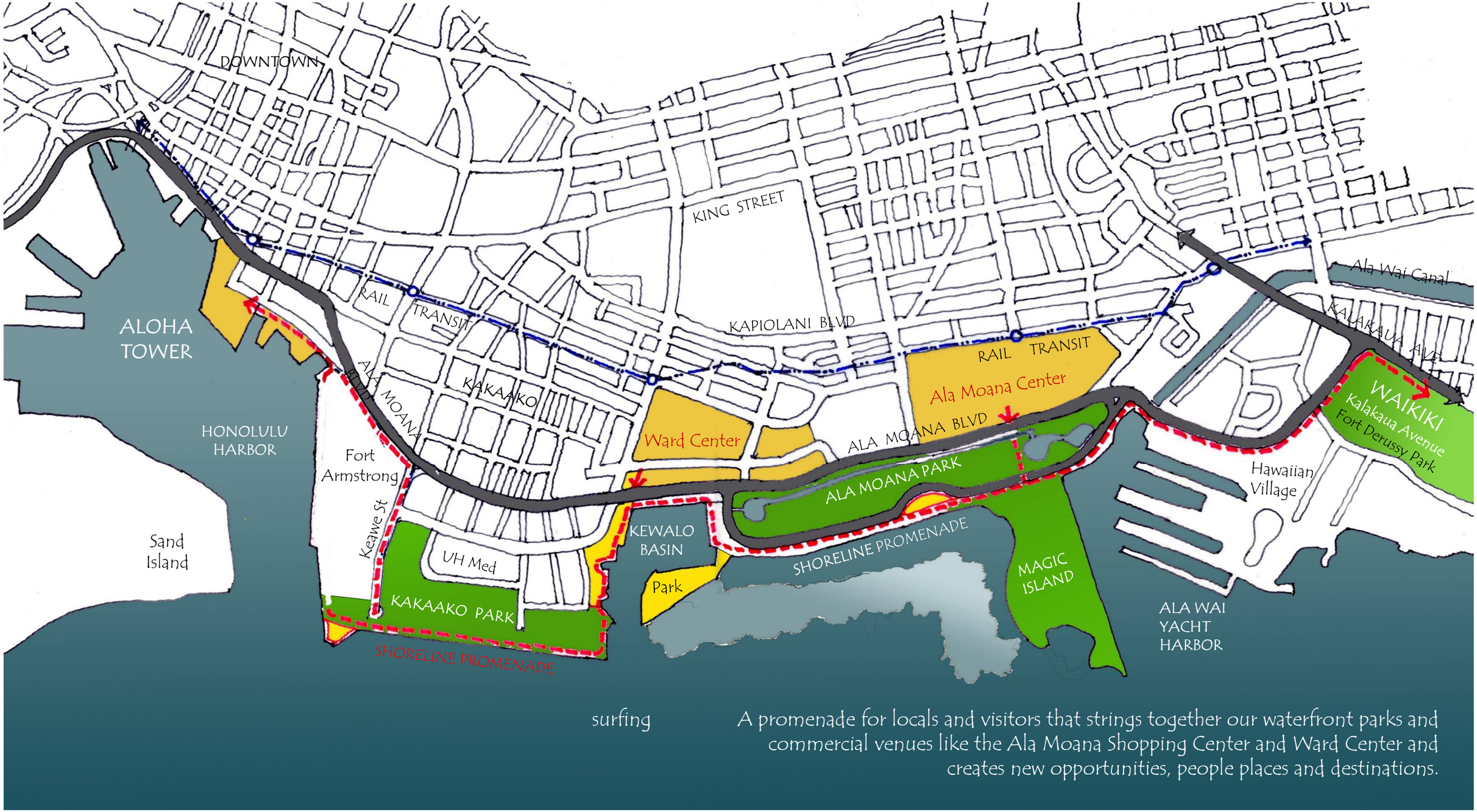
The "Lei of Green" plan is a gift to the citizens of Oahu.
The plan is being prepared and implemented by members of the
Hawai'i Chapter of the American Society of Landscape Architects
Sketches and G.I.S. information for plan graphic generously provided by the City and County of Honolulu



8 Diamond Head State Monument: Removal of the four large buildings from the Crater floor will make way for the development of one of three new picnic areas. Each picnic area is planned to have a new comfort station.

7 Kuhio Beach Promenade: The Kuhio Beach Promenade will be an extension of Kapiolani Park into Waikiki. This shoreline greenway will become the lead project for the widening of Waikiki Beach, which will have a continuous promenade to the Ala Wai Yacht Harbor.

6 Ala Wai Promenade: This promenade will have continuous pedestrian and bicycle paths along both banks of the canal, and connect to the Manoa Stream Greenway, the Waikiki Beach Promenade and Ala Moana Beach Park.



SHORELINE PROMENADE

ALOHA TOWER to WAIKIKI

Xsite/mtoma.architect
mtoma.architect@gmail.com

Support the growing PEDESTRIAN CULTURE.
Provide and enhance opportunities for WALKING,
EXERCISE and SOCIAL CONTACT.

ALOHA TOWER

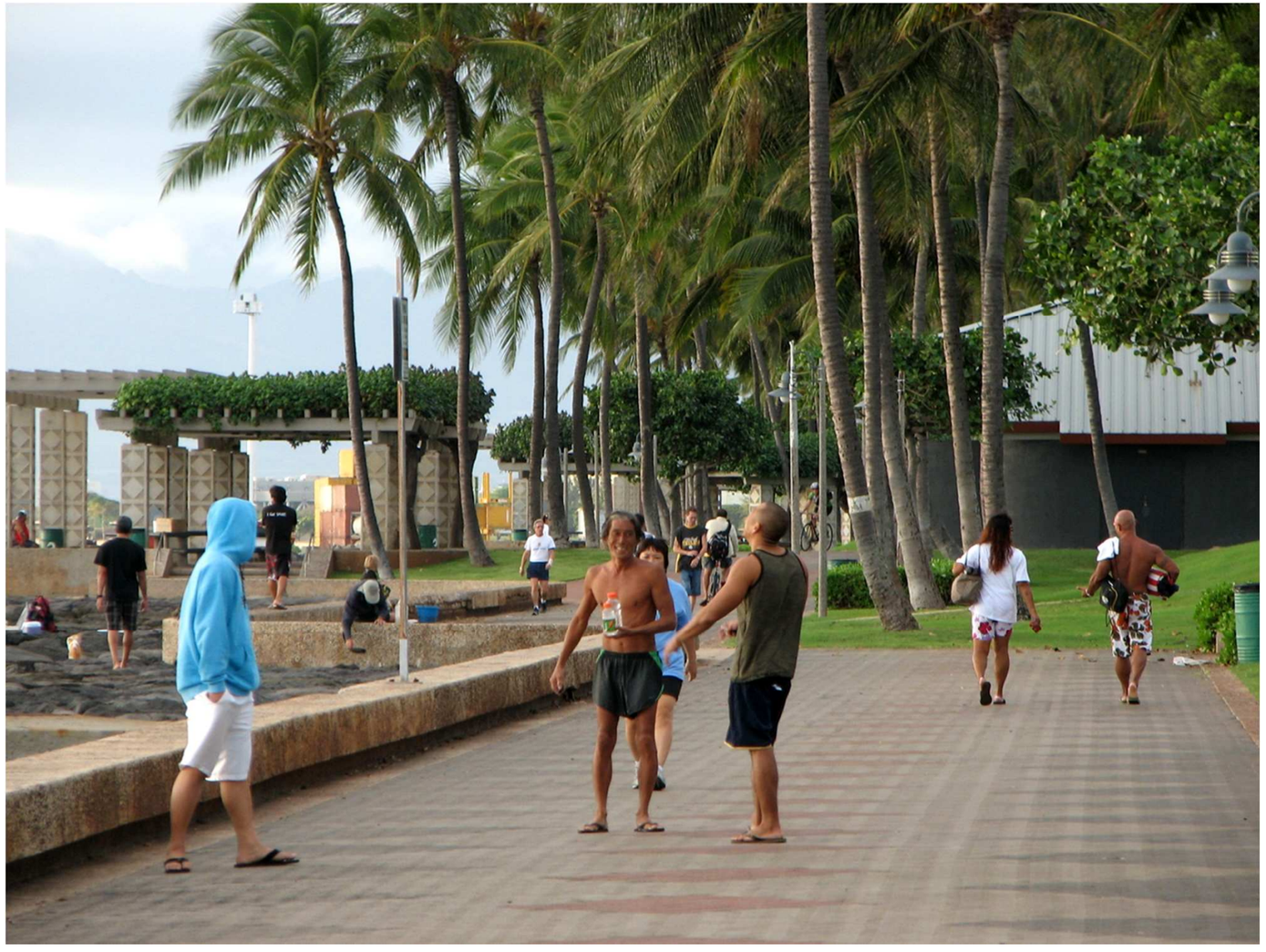
the MARKETPLACE and
the WATERFRONT
connects to
DOWNTOWN and
future growth.

Ala Moana Blvd Promenade

connects the Honolulu Waterfront
and Aloha Tower to Kakaako Park

Fishes can be seen below the wall of this
historic pier with the Aloha Tower beyond.

create PEDESTRIAN FRIENDLY PROMENADES with
wide sidewalks and landscaped buffer from traffic.



OUTDOOR AMPHITHEATER

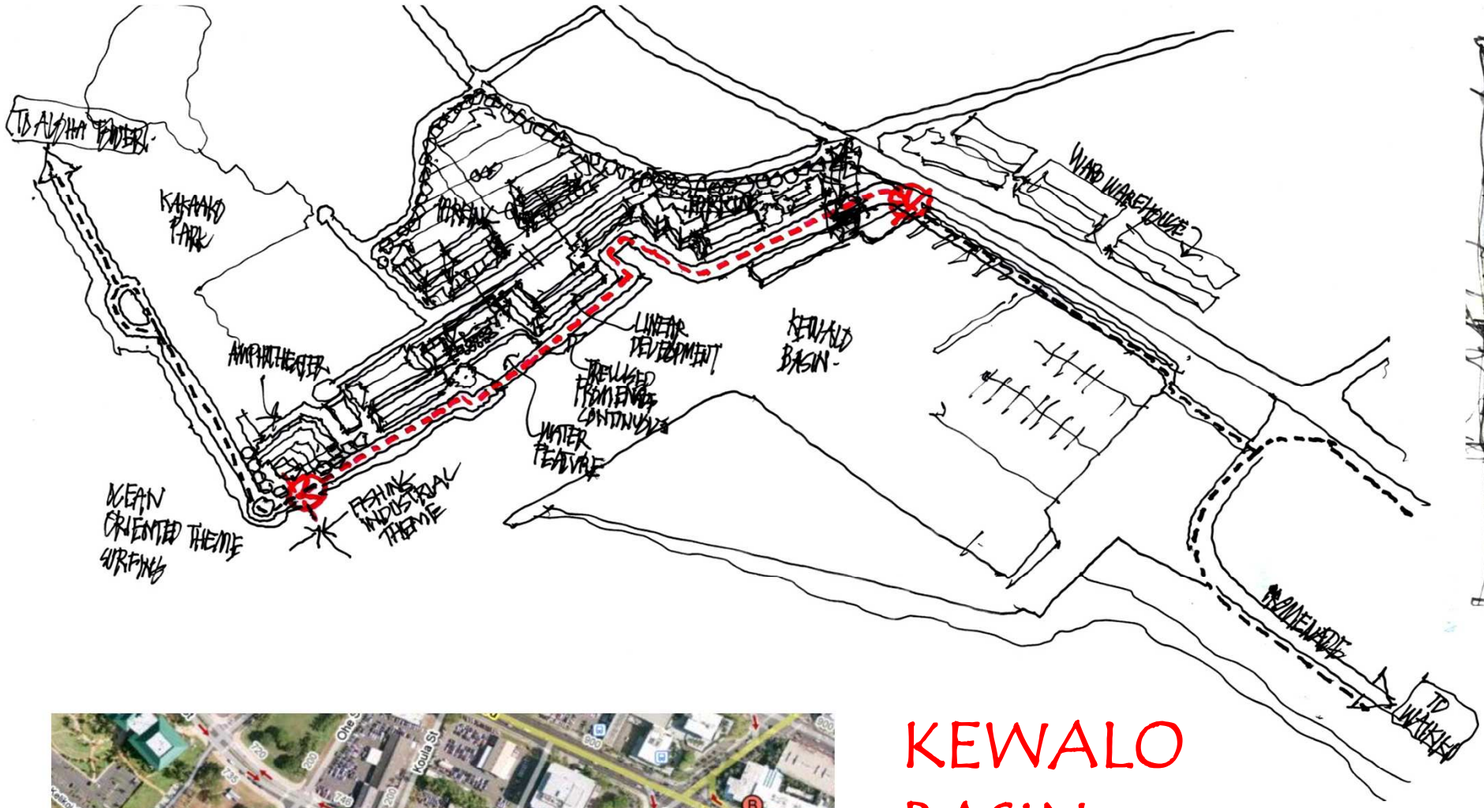
SURFING AT KAKAAKO

C HILDREN'S MUSEUM

Kakaako Waterfront Park

what's good for the locals is good for the visitors

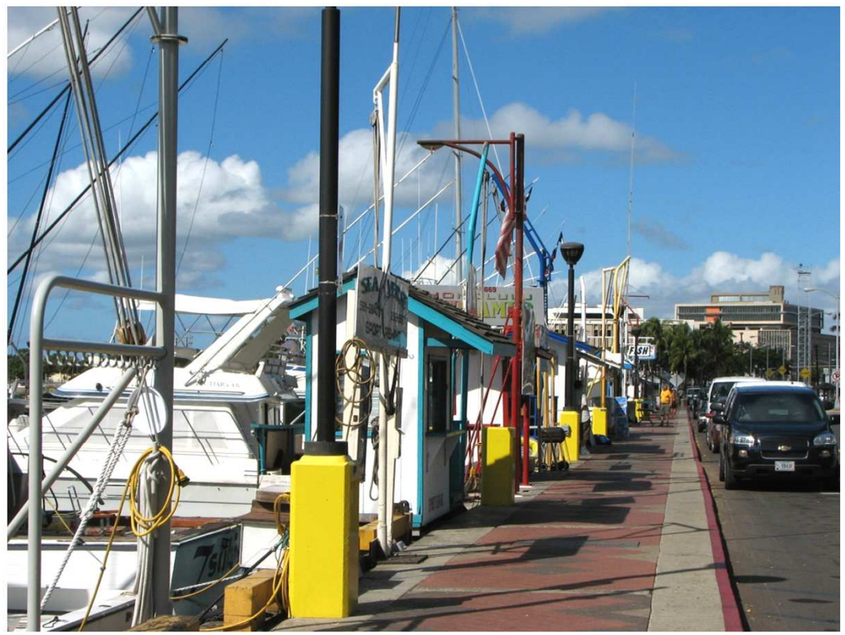
Much of the pedestrian elements are in place along with a variety of ocean environments. The historical Honolulu Harbor and Aloha Tower, Kakaako Waterfront Park, Fisherman's Wharf, Ala Moana Park and Kalakaua Avenue Promenade and the beaches of Waikiki.



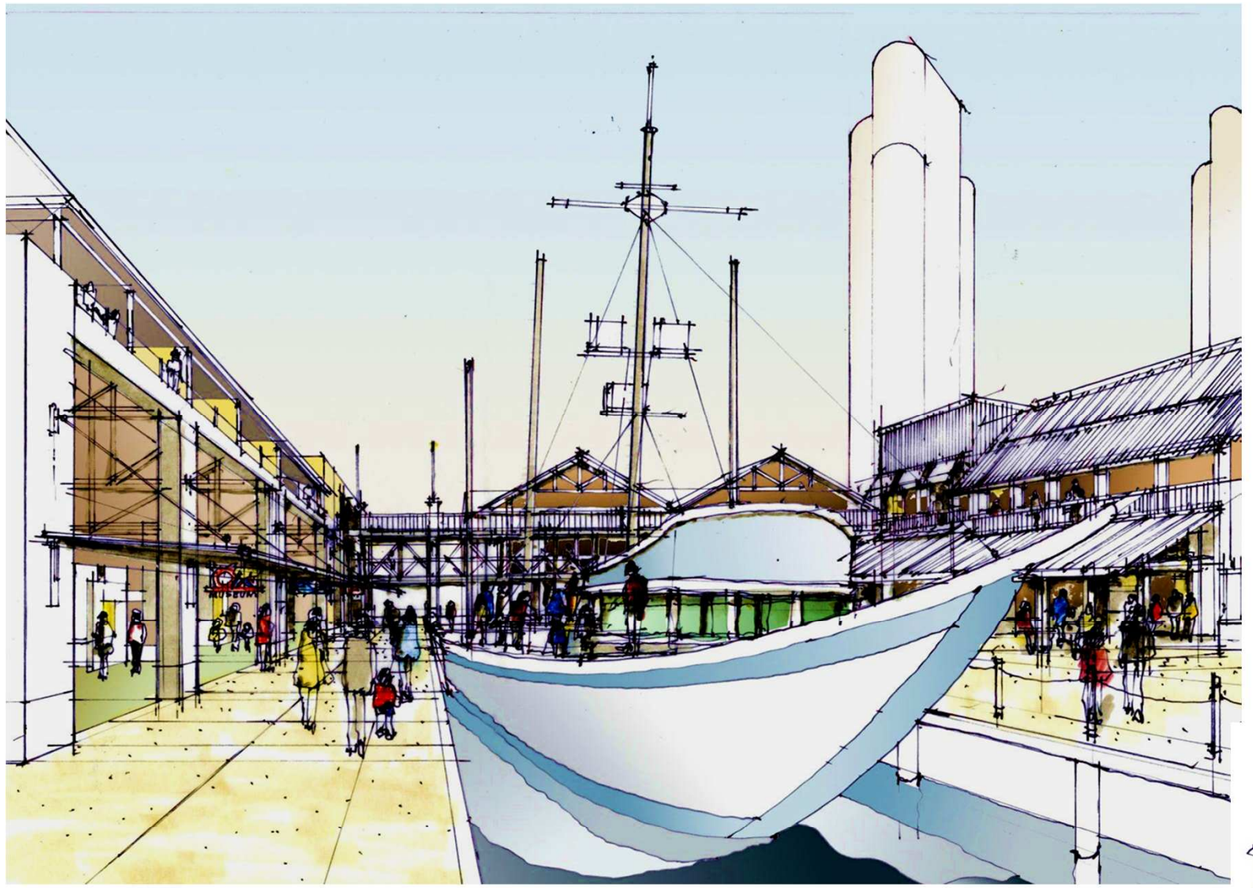
FISHERMAN'S WHARF at Kewalo Basin once bustling with activity of fishing boats, fish auctions and cannery.

KEWALO BASIN

is the **critical link** connecting the various waterfronts and destinations.



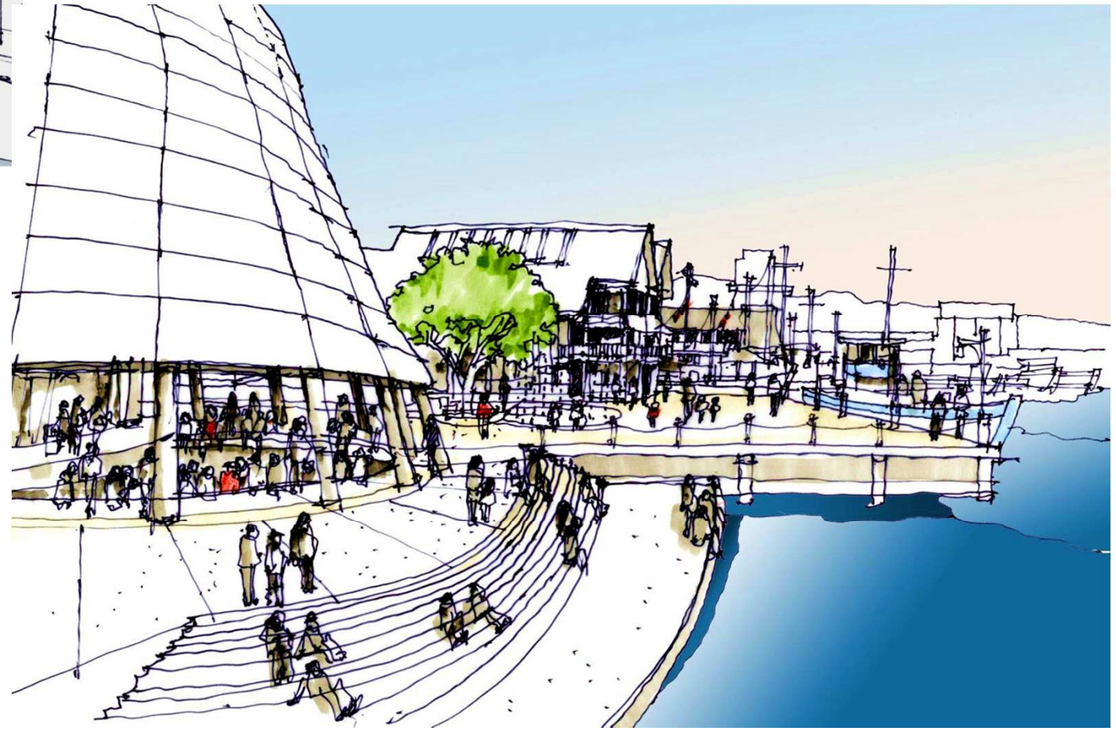
Charter fishing boats line the pier at Kewalo Basin.



FISHERMAN'S WHARF at KEWALO BASIN

the history of Oahu's fishing industry and the need for sustainable use of our ocean's resources can be told. or something else.

A PROMENADE along the the water's edge provides opportunities for public venues and commercial activities.



Xsite/mtoma.architect

Existing promenade along Ala Moana Beach, love it.

Weekend fishermen come out when Oama and sardines run at Magic Island

ALA MOANA PARK

A favorite of locals and visitors come to enjoy the beach as well as this mile long open green space. Ala Moana and Ward Centers are across Ala Moana Boulevard can be part of the makai walk experience.

THINK PEDESTRIAN opportunities to create gathering places and commercial activities.

ACTIVATE Open Market, Crafts Fair, Hawaiian Music, Ongoing programming and events planning.

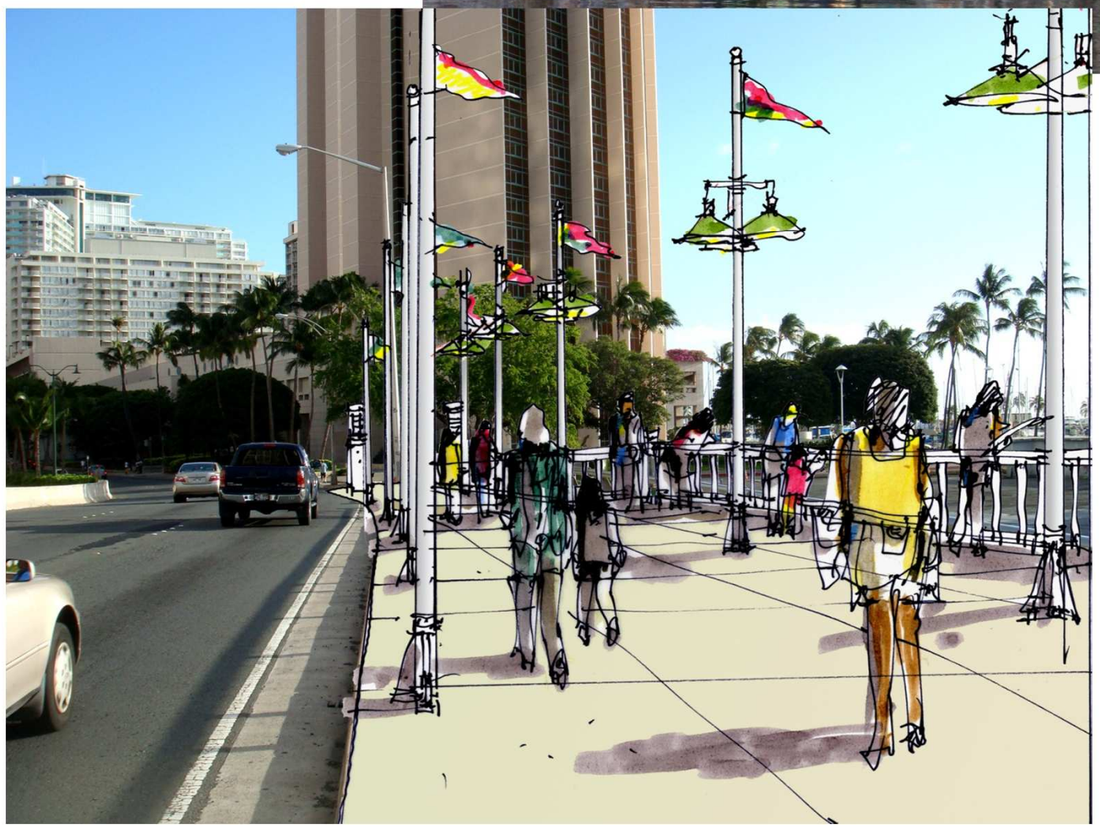
Xsite/mtoma.architect

Before

Bridge at the Ala Wai Yacht
Harbor "The Gateway to Waikiki"

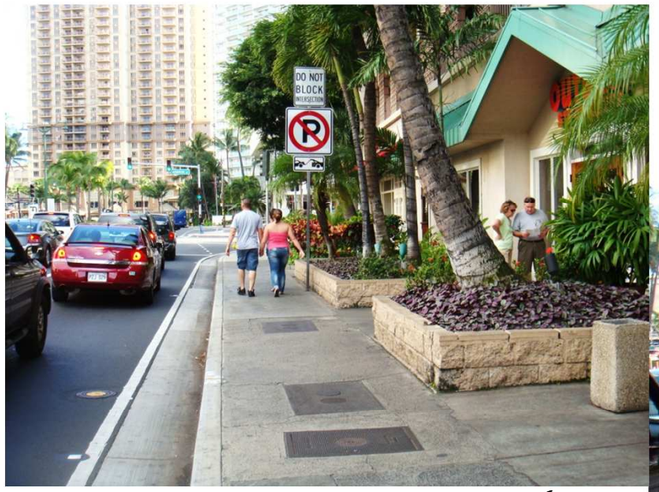
ALA WAI BRIDGE and the YACHT HARBOR

the "GATEWAY TO WAIKIKI" over the Ala Wai Bridge. Provides a view of the AlaWai Yacht Harbor and the promenade along the Ala Wai Canal to the Convention Center on the mauka side.



THINK PEDESTRIAN: Sidewalk is Promenade

Xsite/mtoma.architect



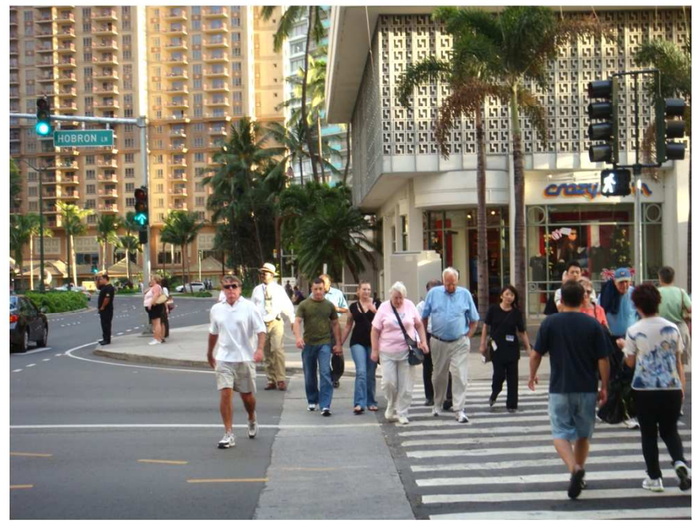
Before

WAIKIKI and Kalakaua Avenue

Ala Moana Boulevard at Kalakaua Avenue is the anchor of the 3 mile PROMENADE. It provides a unique Hawaii shoreline experience and a full days worth of memorable destinations.

THINK PEDESTRIAN: remove barriers and encourage ground level activity

Fort DeRussy Park and sidewalk at the entry to Waikiki at Kalakaua Avenue and Ala Moana Boulevard



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GREENWAYS CASE STUDIES

There are two case studies in this section that will help to analyze the design criteria for the "Lei of Green", a green pathway system proposed for Honolulu's urban fabric. Each case study was picked because of their special features, design and how they solved city issues dealing with gaps and connectivity. The Emerald Necklace was America's first greenway that shows how a greenway can blend into a city that serves different functions and changes the image of a city.[1] The New York City High Line was the first successful lifted urban greenway built upon an abandoned railway. The New York City High Line showed how to take something negative and change it into something positive, connecting people to people and people to place and creating a safer walking environment for pedestrians that is multi-functional and accessible for all. All of these case studies will become the inspiration for the "Lei of Green" design project.

[1] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.

GREENWAYS CASE STUDIES

THE EMERALD NECKLACE – BOSTON, MASSACHUSETTS

Image: The Emerald Necklace Map[2]

The Emerald Necklace is a chain of 9 parks that are connected by green trail parkways and waterways in the Boston and Brookline areas. The Emerald Necklace is 7 miles long and covers roughly 1,200 acres of the urban community. The green trail provides a backyard for 300,000 residents and serves as a tourist destination for more than a million visitors each year.[3] This famous green trail system got its name from the way the planned chain of parks appears to hang from the "neck" of the Boston Peninsula (refer to the picture above).[4] The Emerald Necklace can be done on bike or foot and consists of parks, green pathways, and water ways such as:

- Boston Common
- Public Garden
- Common Wealth Avenue Mall
- Back Bay Fens
- The River Way
- Olmsted Park
- Jamaica Pond
- Arnold Arboretum
- Franklin Park

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[2] Internet. Image. "The Emerald Necklace Map." Emerald Necklace Conservancy. C2013. http://www.emeraldnecklace.org/park-overview/park-map/
[3] Internet. "Emerald Necklace Conservancy." Emerald Necklace Conservancy. C2013. www.emeraldnecklace.org/park-overview/
[4] Wikipedia. "Emerald Necklace." Wikipedia Foundation, INC. Last modified: July 31, 2013. http://en.wikipedia.org/wiki/Emerald_Necklace

Only a few cities have undergone drastic changes in geography as Boston.[5] Starting in the early 1742, the city began to fill in the shallows near the shore.[6] By the 1820's and into the 1830's, hilltops were being cut and used as landfills.[7] By the 1860's, the Back Bay, which had been an environmental concern for decades due to sewage dumping, had been filled in.[8] For 200 years the only place for Bostonians to escape the crowded conditions of the city was the 48 acre land known today as the Boston Common.[9] Today the Boston Common is one jewel to the Emerald Necklace where it is known to be the oldest park in the country (remained the only open green space in Boston until 1837).[10] In the back of Boston Common was Back Bay, a bay that would naturally flush out with the ocean twice a day and was the dumping grounds for sewage.[11] Due to a Mill Dam being built for industrialization in 1821, the Bay was closed off to the ocean and no longer had a natural filter to clean out the sewage.[12] The sewage then became and an environmental and health hazard for locals and animals in the area creating an inhabitable place for anyone to be. In 1837, the city of Boston finally began filling in the portion of the Back Bay which today it is the Public Garden, the second park to the Emerald Necklace.[13] The Public Garden added 24 acres of flowers, trees and a man-made lagoon.[14] Filling in part of the Bay didn't help to get rid of the foul smell and in 1860 the State of Massachusetts filled in the rest of Back Bay.[15] This park allowed Boston to grow its boundaries and made room for Boston's third park, Commonwealth Avenue Mall.[16] Commonwealth Avenue Mall was a narrow stretch of green with rows of elm trees that served as a popular promenade that became Boston's most elegant streets today.[17]

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[5] Internet. "Locating the Site." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[6] Internet. "Locating the Site." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[7] Internet. "Locating the Site." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[8] Internet. "Locating the Site." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[9] Internet. "Locating the Site." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[10] Internet. "Locating the Site." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[11] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[12] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[13] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[14] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[15] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[16] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[17]Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm

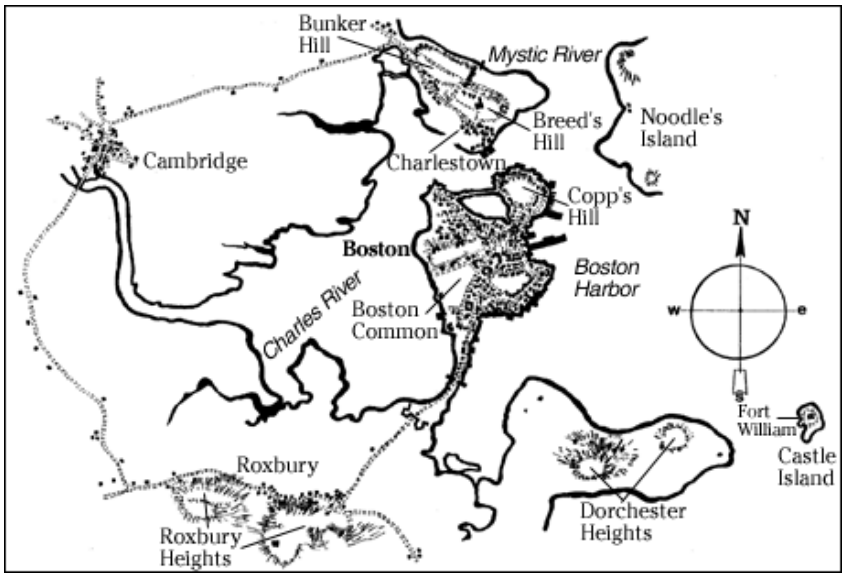

Image: Map of Boston in 1775[18]

Image: Map of Boston Today[19]

[18] Internet. Image. "Locating the Site." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[19] Internet. Image. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm

With the park improvements in Boston, residents gravitated towards the importance and need of designating more land for parks even if the availability of land was limited. The decisions of setting aside green space and building parks was dictated by the topography of Boston and the already existing population that continually grew.[20] In 1875, the Boston City Council passed a Park Act and the Boston Park Commissioners were finally able to propose a park system where people could "in effect, find the city put far away from them."[21] During this time, the push for greenways and parks in Boston became popular after Central Park in New York was completed. In 1870, over-crowding, noise, pollution and environmental impacts towards the land due to increase in population, began to take a toll on Boston's landscape and environment. Olmsted was hired to help bring nature and beauty back into the city of Boston and create landscapes that could be accessible from all parts of the city.

Frederick Law Olmsted was the landscape architect who created the master plan of the Green Ribbon or what it is known today as "Emerald Necklace, "over 100 years Frederick Law Olmsted was America's first Landscape Architect, also known as the Father of Landscape Architecture. His landscape design firm's work can be found in 45 states and several countries throughout the world. Perhaps his most famous work was Central Park (1857-1863) in New York City.[22] In fact, the success of his design in Central Park was a model for cities such as Boston, who saw the positive influence rural parks had on city dwellers.[23] Olmsted helped to reshape the topography to solve major drainage and sewage problems and to create a rustic environment that identifies with Boston's past.[24] Planning for a new greenway, started in 1850 and towards the end of the 19th century Olmsted had designed a green parkway plan, creating a link to the chain of parks on Boston's peninsula. Olmsted designed the park chain system to provide a healthy place where people could come for relief from the pollution, noise and overcrowding of the city life.[25]

He believed that planned parks and open spaces improved the health and disposition of those who dealt with the claustrophobic and unsanitary conditions of city life.[26] He also felt that

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[20] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[21] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[22] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[23] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[24] Internet. "Emerald Necklace." The Official Website of the City of Boston. http://www.cityofboston.gov/parks/emerald/
[25] Internet. "Emerald Necklace." The Official Website of the City of Boston. http://www.cityofboston.gov/parks/emerald/
[26] Internet. "Setting the Stage." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm

overcrowding cities made people nervous and wary of each other as well as susceptible to disease.[27] In order for all city dwellers to have contact with the natural world, Olmsted envisioned a linked chain of parks as more beneficial that a large single park like Central Park in New York City.[28] The linked parks together would fill a need for the entire city, not just the neighborhoods closest to a large, central park.[29] He saw an additional benefit that all parts of the city would be able to connect through the chain of parks.[30] With the greenway plan, Olmsted also envisioned carriages, horseback riders and pedestrians enjoying recreations and that Bostonians could find places for both active play and quiet contemplation.[31] Olmsted also believed that each park site had its own genius that it could contribute to the whole system stating:

"The fitness of a site will largely be found in its adaptation to supply some form of park refreshment that others of the series are ill-adapted to supply....Regarding the natural opportunities and limitations of the several localities to be named below, it will be found that each will, through a judicious method of improvement, be adapted to induce a distinct impression; and that, in each, the space to be applied to this impression is sufficient for this purpose."[32]

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[27] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[28] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[29] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[30] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[31] Internet. "Emerald Necklace." The Official Website of the City of Boston. http://www.cityofboston.gov/parks/emerald/
[32] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm

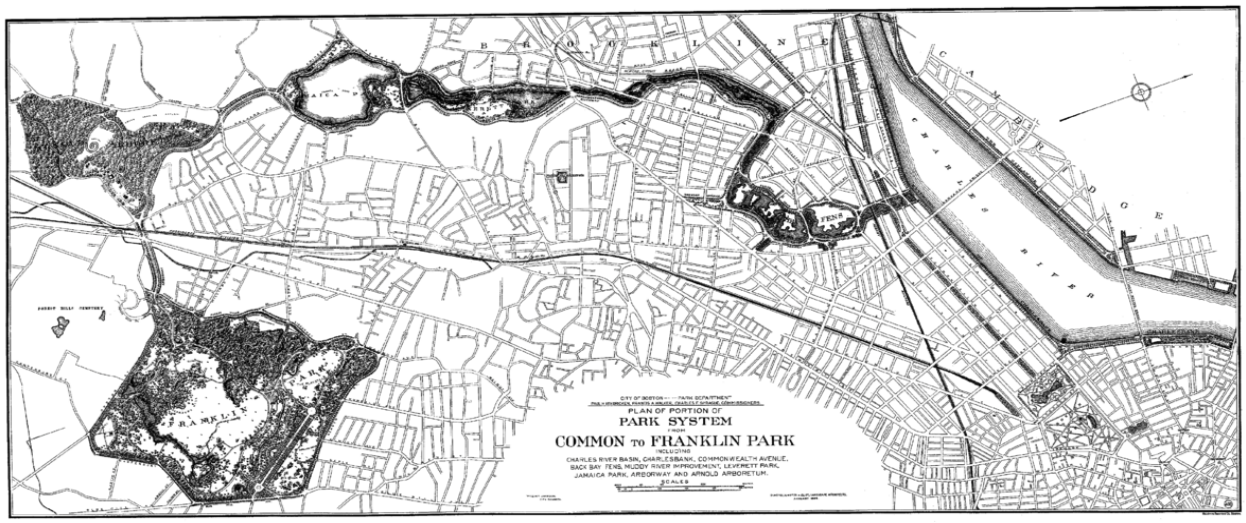

Image: The Original Plan of the Necklace from 1894[33]

The design of the chain parks would allow locals to travel for miles surrounded by greenery and new parks were planned to link with the existing parks (Boston Common, Public Garden and Commonwealth Avenue).[34] In certain parts where space was too limited for parks, the plan called for parkways, roadways that were widened and planted with overhanging trees.[35]

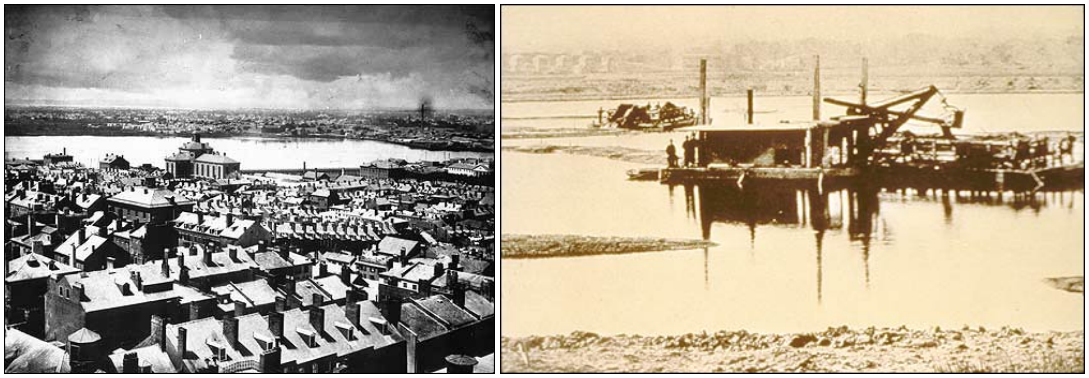

Image: Boston in the 1850's. A view of Boston looking from the State House to the West End.[36]
Image: Dredging in the Back Bay in 1882.[37]

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[33] Wikipedia. Image. "Emerald Necklace." Wikipedia Foundation, INC. Last modified: July 31, 2013. http://en.wikipedia.org/wiki/Emerald_Necklace
[34] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[35] Internet. "The Green Connection." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[36] Internet. Image. "Visual Evidence." The Official Website of the City of Boston. http://www.cityofboston.gov/parks/emerald/
[37] Internet. Image. "Visual Evidence." The Official Website of the City of Boston. http://www.cityofboston.gov/parks/emerald/

Image: The Muddy River during construction in 1892.[38]

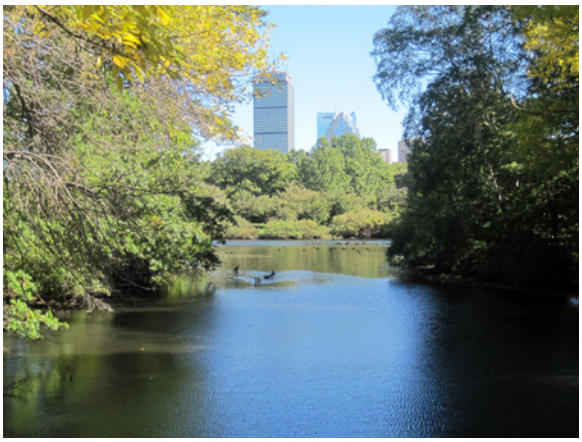

Image: The Muddy River after construction in 1920.[39] Image: The Muddy River today[40]

[38] Internet. Image. "Visual Evidence." The Official Website of the City of Boston. http://www.cityofboston.gov/parks/emerald/
[39] Internet. Image. "Visual Evidence." The Official Website of the City of Boston. http://www.cityofboston.gov/parks/emerald/
[40] Internet. Image. "City Shaping V: Can Philanthropy for Boston's Parks Break Through the Grass Ceiling?" The Cultural Landscape Foundation. C2012. http://tclf.org/blog/city-shaping-v-can-philanthropy-bostons-parks-break-through-grass-ceiling

Olmsted began his first Boston Park in 1878 in the newly created land known as the Back Bay Fens (marshy swamp area) where he worked with engineers to solve the sanitation problem and help to restore the swamp to its original salt marsh condition.[41] With the use of flood gates to control levels of water the muddy river was diverted into the Charles River.[42] Olmsted was also a part of a big project in Boston that required establishing and maintaining an arboretum (a collection of trees and shrubs from all over the world) and found a way to incorporate the arboretum into the Emerald Necklace.[43] In 1892 an agreement was signed between Harvard University and The City of Boston stating that the city would own the land and lease it to Harvard for a dollar a year for a thousand years.[44] The Arboretum began construction in 1883 and is today a 265 acres jewel in the Emerald Necklace.[45] Olmsted also had a hand in improving the Muddy River that would too be in the plan for the Emerald Necklace.

Sensitive to the landscape, Olmsted blended man-made portions with natural water and land formations.[46] His also designed the green parkway to include paths and bridle paths for riding horses. Lastly Jamaica Park was another one of Olmsted's projects.[47] The pond was the only large fresh water source in the city (provided water to residents until 1848) and it was a great opportunity to design a park around it.[48] Olmsted also retained two of the summer houses along the pond and used them for places to get refreshments along the path.[49] Olmsted didn't design Commonwealth Avenue Mall, the Public Garden or the Boston Common but it was said that he either modified the existing plans or implemented new plantings and pathways.[50]

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[41] Internet. "Creating the Jewels of the Emerald Necklace." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[42] Internet. "Creating the Jewels of the Emerald Necklace." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[43] Internet. "Creating the Jewels of the Emerald Necklace." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[44] Internet. "Creating the Jewels of the Emerald Necklace." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[45] Internet. "Creating the Jewels of the Emerald Necklace." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[46] Internet. "Creating the Jewels of the Emerald Necklace." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[47] Internet. "Creating the Jewels of the Emerald Necklace." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[48] Internet. "Creating the Jewels of the Emerald Necklace." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[49] Internet. "Creating the Jewels of the Emerald Necklace." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm
[50] Internet. "Creating the Jewels of the Emerald Necklace." National Park Service. http://www.nps.gov/nr/twhp/wwwlps/lessons/86bostonparks/86setting.htm

Today the Emerald Necklace remains a model in urban landscape design and continues to act as a link to the many parks in Boston, as well as famous landmarks, schools, nature and wildlife.[51] Other cities and towns have also used the Boston greenway model to implement in their own greenways. The parks in the system are designated Boston Landmarks and listed on the National Register of Historic Places. Olmsted's vision for Boston helped to create a network of green pathways and water ways that link parks together creating a cohesive walk able, recreational trail for the city and the people that live in it. Frederick Law Olmsted had succeeded in encircling Boston with a living, invigorating "green ribbon."[52]

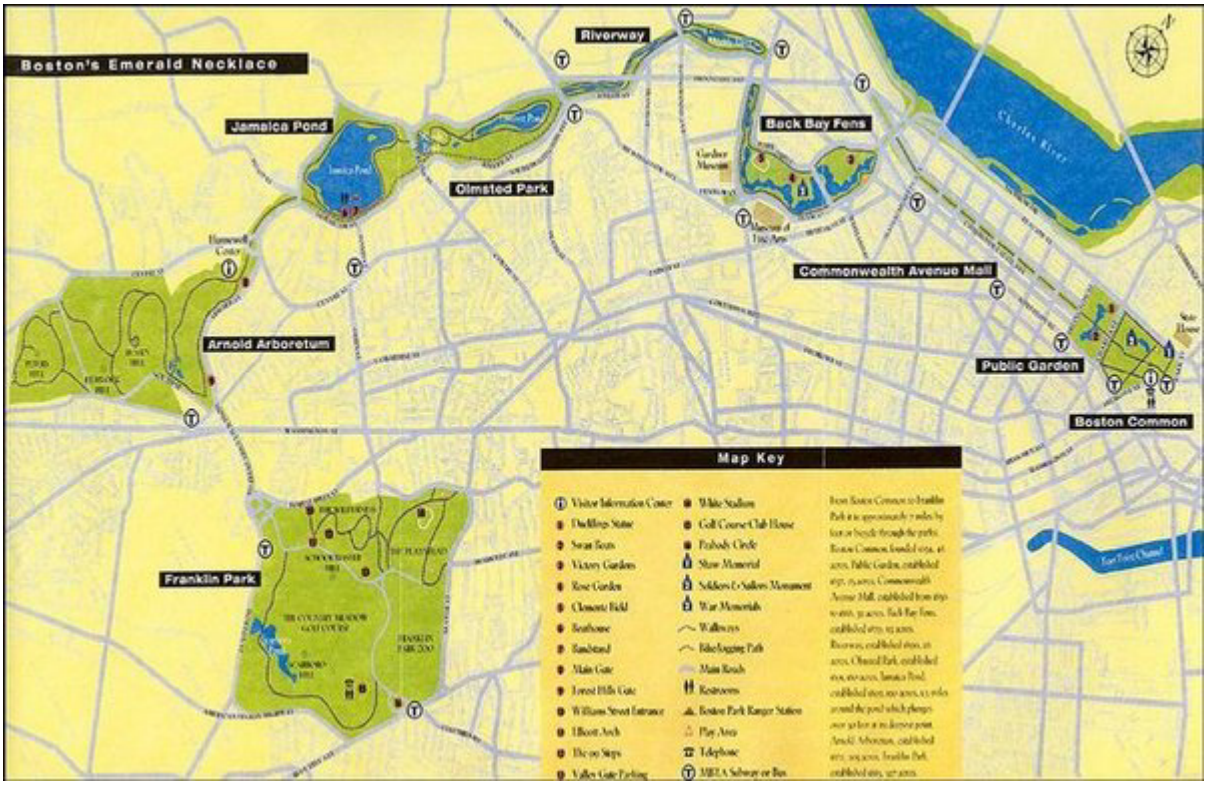

Image: Map of the Emerald Necklace[53]

[51] Internet. "The Green Connection." The Official Website of the City of Boston. http://www.cityofboston.gov/parks/emerald/
[52] Internet. "Creating the Jewels of the Emerald Necklace." The Official Website of the City of Boston. http://www.cityofboston.gov/parks/emerald/
[53] Internet. Image. "Visual Evidence." The Official Website of the City of Boston. http://www.cityofboston.gov/parks/emerald/

Connectivity and Continuity

When the Emerald Necklace was completed, a person could walk down from the State House through the Boston Common and the Public Garden, up Commonwealth Avenue, around the Back Bay Fens and along the Riverway, past Olmstead Park and Jamaica Ponds, through rows of trees along the Arborway, to the Arnold Arboretum and Franklin Park.[54] The Emerald Necklace is connected by a waterway and became the first greenbelt for an American City. It remains a model for designing greenways all around the world.

Accessibility

Olmsted envisioned a linked chain of parks more beneficial than a single big park. Olmsted believed that all city dwellers should be able to have contact with the natural world and creating the link of parks would fill a need for the entire city, other than the neighborhoods closest to a large, central park.[55] Accessibility was one of the main design issues when designing the Emerald Necklace. Olmsted felt that if more people have easy access to the parks, the more successful the Emerald Necklace is to serve as a public space for the City of Boston.[56]

"We want a ground to which people may easily go when the day's work is done, and where they may stroll for an hour, seeing, hearing, and feeling nothing of the bustle and jar of the streets where they shall, in effect, find the city put far away from them…"

- Frederick Law Olmsted ***1870***[57]

[54] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.
[55] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.
[56] Wikipedia. "Emerald Necklace." Wikipedia Foundation, INC. Last modified: July 31, 2013. http://en.wikipedia.org/wiki/Emerald_Necklace
[57] Wikipedia. "Emerald Necklace." Wikipedia Foundation, INC. Last modified: July 31, 2013. http://en.wikipedia.org/wiki/Emerald_Necklace

Identity

At one point of time a part of Boston was a foul smelling marsh that was later cleaned up and became the Back Bay and Fens parts of the Emerald Necklace. At the time of the foul smelling years that Boston had to endure, Bostonians wanted to bury the stagnant muddy river.[58] Olmsted went against the idea and reclaimed the area, sculpting the land around into a gently winding stream.[59] The Emerald Necklace helped to create an identity for Boston and since the famous greenway has been standard for many other greenways in the World it then identifies those places it inspired.[60] It not only represented a bold new vision from the designer, but also reshaped the image of the city.[61]

"Look, having a public park was unusual, but having a belt of green around a city was unheard of." - Former Massachusetts Governor Michael Dukakis[62]

Safety

Local park officials are always looking of ways to improve the Emerald Necklace and make it a safer place for pedestrians. The State and local park officials were developing guidelines in 2010 to improve the safety, accessibility and consistency of the routes used by cyclist, pedestrians and joggers through the Emerald Necklace corridor. The project was geared to improve the connections across the urban parklands pathways, sidewalks and crosswalks will also aim to balance the needs of all the different types of users, while still preserving the corridors historic character, according to the state Department of Conservation and Recreation, which is coordinating the project along with the Emerald Necklace Conservancy, a non-profit public-private partnership.

[58] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.
[59] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.
[60] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.
[61] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.
[62] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.

Attractiveness

The Emerald Necklace creates an illusion of the natural environment despite the meticulous plans for engineering, construction and planting. Today the conservancy, in conjunction with the public and private partners, organizes and implements maintenances initiatives to preserve the naturalistic beauty of Olmsted's parks as well as maintain the gardens and pathways added in later years.[63] The park is a place for people to connect to nature and be a part of the natural environment of Boston that the Emerald Necklace offers in its landscaping and planning. The Emerald Necklace also has a Restoration Program that oversees projects and programs to help restore and renew landscape, waterways and parkways of the greenway.

Multi-functionality/Activities

The Emerald Necklace was designed to serve multiple functions. The first was to improve the health and welfare of the residents of Boston.[64] The second is that the Emerald Necklace became part of the identity of the city of Boston.[65] The third is the Emerald Necklace Parks is made up a chain of habitats for plants and wildlife in Boston.[66] The Back Bay Fens and the Riverway are natural floodplains penetrating the city that was also designed as a flood control and water quality project.[67]

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[63] Internet. "Emerald Necklace Conservancy: Maintenance." Emerald Necklace Conservancy, c2013. http://www.emeraldnecklace.org/restoration/maintenance/

[64] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.

[65] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.

[66] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.

[67] Chang, Hui Fang. "Filling the Void: Reconnecting the Urban Fabric of Atlanta."University of Georgia. Athens, Georgia, c2002. December 2002.

EXERCISE TRAILS + EXPERIENCE

In the past year, I've ridden on a few bicycle trail rides in different parts of California and got to walk the historic Pearl Harbor bicycle trail here in Hawaii. I've seen some excellent exercise trails and some poorly maintained; run down trails. The following are places I've got to experience:

1. Los Angeles Exercise Path (Santa Monica/ Venice Beach)
2. San Francisco Exercise Path (Fisherman's Wharf/ Across the Golden Gate Bridge)
3. San Diego Exercise Path (Mission Beach/ La Jolla)
4. Pearl Harbor Historic Exercise Path (Pearl Harbor/ Waipahu)

My favorite bicycle experiences happened in California when I was away doing my Practicum Experience for my Architecture Doctorate Degree in Los Angeles. Up and down the coast of California there are many great cities that connect to the ocean such as San Diego, Los Angeles and San Francisco. Where there is a vibrant city, there is always a popular tourist attraction where you can rent a bike and ride anywhere you want and experience whatever you want whether it be historical landmarks, special districts, scenic views, beach life, people watching and much more. I was fortunate enough to experience popular bike trails at Santa Monica Beach, the San Diego Mission Beach Bay trail and the Fisherman's Wharf to Sausalito path. Each trail was unique in its own way whether it be views, trail course, culture, and people but each and every trail was designed to promote exercise, connectivity and of course a fun tourist atmosphere. By experiencing these trails I have a better understanding on how a successful trail looks, how they serve the community, what activities are along the trails and the feeling it gives a user. The following is a brief reflection of my experiences on each trail that I've either ridden on or walked on in the past year.

Los Angeles Exercise Path (Santa Monica/ Venice Beach)

This bike path was the first one I've experienced in California and the start to many experiences. Knowing it was a "must-do" tourist attraction my boyfriend and I wanted to experience the Californian beach scene on wheels. We rented bikes at the Santa Monica Pier and began our journey up and down the coast. The neat thing about this bicycle path was that it passed through a couple popular beach communities in Los Angeles such as Venice Beach. Along the path would be access to amazing beach retail and food places to sit down and eat or drive by and pick-up. Not to mention, it connected back to Santa Monica Pier a place with a lot of restaurants, food vendors, carnival activities and a amusement park. Venice Beach reminded me of Waikiki with all the vendors on the streets selling goods and people trying to entertain the tourists with their weird acts. The bicycle path was shared with walkers, joggers, roller bladders, skate boarders, families, and of course "us" tourists. It was busy trail and at times we would be playing follow the leader with the person in front of us. The trail seemed to be not only a tourist attraction but a way of transportation for locals making a quick, easy, safe route to where they needed to go, avoiding the streets. Through the trail there would be bathroom areas, access to lanes to main streets and also infamous outdoor exercise jungle gyms for those body builders and gym freaks. I did notice that there was not much signage telling you where you were on the path, what neighborhood you were in and also I notice that there were not many places to sit. I noticed that people and some homeless would sit on the grass as they ate a burger, reading a magazine or people watching. As you went further away from Santa Monica Pier the trail gets sketchy along Venice Beach. If you go north of Santa Monica Pier you get a smoother and less busy path to ride on. In this area you see more volleyball nets up with many games going on. The beach culture here is about sports, exercise and having fun in the sun. Oddly, even if there were hundreds of people on the beach, I never saw a single person in the water, not even surfers. I was told by co-workers that people in Los Angeles don't really go in the water. Doing this bike ride made me feel great to be outdoors, like I had my daily exercise and part of the California scene. Santa Monica Bike Ride is a truly one of the best Californian Beach experience especially when the sun is about to set.

I rate this bike path an overall = (4/5)

Connectivity and Continuity (4)

- The I-10 Freeway separates Venice from Santa Monica. The bike path connects streets of Venice Beach to the Santa Monica area.
- The path is roughly 8.5 miles. The path is actually 33 miles round trip all the way to Redondo Beach. I didn't do the whole trail but at the end of Venice Beach you will need to continue the path into the Venice Neighborhoods, around the harbor and back onto the beach path in Playa Del Rey where you then continue down the coast to Redondo Beach passing the famous Manhattan Beach and Hermosa Beach.
- Biking on the road in Redondo felt un-safe due to the fast moving traffic but there are designated bike lanes on all the main roads especially the ones closes to the beach area.
- Los Angeles Beach communities are bicycle-friendly everywhere you go.

Accessibility (4)

- Only speaking about the part of the path I experience, the path was accessible from Santa Monica Pier with bicycle ramps leading down from the pier to the beach. It was fairly easy to get down and up.
- The path was connected by smaller pathways that connected to a long stretch of a promenade called Ocean Front walk that linked to the main drags of Speed Way and Ocean Avenue with many different side streets to choose from.
- Ocean Front Walk is a famous place to be where there are all kinds of retail vendors, food places to eat and street entertainment.

Identity (4)

- The Santa Monica Bike path without a doubt adds to the identity of Californian beach culture and its one of the main attractions of the beach community along the coast.
- It was once a scene in "Three's Company" and a part of many movies over the years. It wouldn't be a Southern Californian beach without the curvy wide pathways meandering through tall palm trees and busy with people.
- The path relates to the easy going, healthy living character of the beach towns and identifies well with the surrounding neighborhood of pedestrian friendly streets, lined with cute boutiques, eating places and apartments.
- That path not only provides great leisure exercise with great views of the beach but it brings people from all over the world together in one area experiencing one of the greatest things Los Angeles has to over, sunny white sand beaches.

Safety (4)

- The bicycle path is generally a safe place to be during the day.
- I noticed lamp post up and down the path indicating that people must use the path at night.
- I saw a police on a bike in the Venice Beach area and understand that they have police patrolling the area for anything suspicious or foul play.
- I would recommend any place during the day time but no biking late at night.

Attractiveness (4)

- The bike path was attractive in most areas and it gave a great beach vibe and feel.
- The landscaping was simple and clean and hardly any trash on the ground.
- In some areas there were homeless lingering around and it made parts of the path seem dirty and unsafe.
- The sand seemed to be creeping on parts of the path here and there where you needed to be extra careful when turning.
- The timeless view from the path is what made the experience a great one.

Multi-functionality/Activities (5)

- Along the beach path there was opportunities for a person to ride a bike, walk, jog, skate board, play volleyball and go to the beach for some fun in the sun.
- There were also opportunities to be a part of the beach town scene and walk along the Ocean Front Walk and check out food places, retail vendors and live entertainment.
- This path serves to be a connector of different neighborhoods along the Southern Californian coast allows people to experience each place while enjoying the path. It also promotes exercise, an ingredient in healthy living.


ice cream
SANTA MONICA
66
End of the Trail

San Francisco Exercise Path (Fisherman's Wharf/ Across the Golden Gate Bridge)

During my Practicum Experience in Los Angeles for my Architecture Doctorate Degree, I was fortunate to take a trip up to San Francisco for an interview with an architectural professional. While up in San Francisco for a few days, I was able to spend a day exploring the city. What better way than to explore the city on bike. With my great experience at Santa Monica I had to do one in San Francisco. I was joined with a fellow practicum classmate of mine that was doing his practicum experience in San Francisco. We met at Fisherman's Wharf and rented our bikes there. We were lucky that the Bicycle Rental gave us both a bicycle route map that will help us on our journey. Judging by the weather it was bound to drizzle on us along the way and the view of the Golden Gate Bridge was covered with smog making it look eerie. We set off, and rode down the bay toward the Golden Gate Bridge hoping it would clear up. Along the way we made stops to snap pictures at popular and famous landmarks such as San Francisco Maritime National Park, Fort Mason, The Place of Fine Arts, Crissy Field, and The Walt Disney Family Museum and all the way across the Golden Gate Bridge. Luckily by the time we got to Crissy Fields the smog subsided, sun started to beam down and blue filled the skies. I think it was truly our day to do this amazing bike ride. As we got to the Golden Gate Bridge it was clear as whistle and we rode across it with great views of the city, the bay and the ocean. Along the path there was great signage, letting us know where we needed to go, where we needed to cross, and what area we were in. There were also information boards talking about the landmarks and history of certain places along the path. Along the path there were a lot of joggers and bicyclists. I noticed that there were lanes on the path that were designated for bikers and the other for walkers/ joggers. Conveniently there was painted signage of a bicycle or a figure walking on each pathway surface. It allowed us bicyclist to know that we need to stay on our own side and that we share this path with hardcore joggers. Is not hard to believe why San Francisco is one the most fit Cities in America as everyone seems to be jogging or bicycling in the city. With that said, this bicycle path was a great work out and a great way to see who uses the path and for what reasons. Another thing I noticed is that there were exercise jungle gyms in certain areas of the path for people to use for pull up, sit –ups, etc. Exercise, seemed to be the number one reason for locals and he second is for tourists. The path had access to local streets and was a continuous from Fisherman's Wharf all the way across the Golden Gate Bridge. Relatively safe from the hustle bustle of the cities roads, it was scenic, relaxing bike up to the Golden Gate Bridge. I do warn that there are some hills you will need to ride up but it's not bad and you can always get off your bike and walk it up. While on the bridge the bike path was gated from the on-going traffic on the bridge, creating a safe environment for bikers and joggers. The path went through a couple of parks and you could see

the sports events that were going on at the time whether it was soccer games, basketball scrimmages kite flyers, etc. This area in general was busy on a Saturday morning. Not to mention, that along the path were rest stops where you could sit down, eat, buy souvenirs, and use the restroom. Along the path were places to sit if someone wanted to take a rest of take in the views. Would I do this bike ride again? Yes I would, it was not only a great way to see the waterfront of San Francisco, but to experience the culture of San Francisco, the people that live there, the historical monuments and parks, along with the chance to be outdoors getting exercise and learning about San Francisco as you cycle down the coast. This bike ride was an experience I will never forget and would love to do it again.

I rate this bike path an overall = (5/5)

Connectivity and Continuity (5)

- The bicycle path that led from Fisherman's Wharf all the way across the Golden Gate Bridge was a continuous path that had a few moments where you would need to cross a road.
- The path is roughly 6 miles to from Fisherman's Wharf to the other end of the Golden Gate Bridge and a round trip of 12 miles total.
- The path connected popular tourist areas to parks and famous landmarks allowing locals and tourist to experience San Francisco's waterfront and learn a thing or two while biking.

Accessibility (5)

- The path is accessible to downtown San Francisco near the Fisherman's Wharf area but when you get closer to Crissy Field area, the neighborhood around it becomes residential homes and eventually turns into a freeway area that connects with the Golden Gate Bridge.
- In the area near Crissy Field you can also connect back to the main road that leads back to Fisherman's Wharf area and be back into the city. Once you're on Golden Gate Promenade it leads you right to the Golden Gate Bridge Tourist Attraction hub.
- Having a bicycle in San Francisco provides great opportunity for someone to see the whole city. Yes, you can bike just about anywhere you would want if you have a bike at hand. Me and my classmate found our way up a hill and through Presido an affluent neighborhood where we rode all the way down to the Golden Gate Park.

- The great thing about the San Francisco bike rental we rented from had two other shops around the city and one was located right in front of Golden Gate Park, allowing us to drop off our bikes there and catch a cab back to Downtown instead of biking back. That was a life saver!

Identity (5)

- This path blends in well with the city of San Francisco. Its meanders down the waterfront showing the water activity culture of the city and the importance of fishing is in the area.
- You have your occasional surfers that catch the crazy breaks under the Gold Gate Bridge, to the fisherman dropping their lines up and down the stretch to the tug boats bringing in the big ships.
- The waterfront of San Francisco is a vibrant and the place to be during the day time.
- The path had information boards pointing out where to go, where you were and what is around. Most importantly it had information boards that you taught you the history or certain landmarks and areas educating visitors and locals who pass by to read.
- Further down at the end of Crissy Field you have the old red woof, white painted colonial houses that still stand today and this makes you feel like you're walking back in time.
- I feel that this bike path adds to the identity of the area and promotes healthy lifestyle with exercise, something San Francisco residents are all about. Riding on this path made me feel that I wanted to live in this City one day, it makes you fall in love with San Francisco and everything about it.

Safety (4)

- This path seemed to be well designed and you can tell there was a lot of thought put into it as compared to other places. In some areas there are no lamp posts or lighting that a night time user would need. In the areas where there are tourist such as Fisherman's Wharf and the Golden Gate Bridge Visitors Center is where lighting is found.
- Walking on the entire path would be risky given the fact that there is no lighting in some areas and certain parts of the path are far away from the busy streets and highway.

Attractiveness (5)

- For a busy path daily, the maintenance seemed up to date. I feel like there is a crew that maintains this path weekly.

- The landscaping was beautiful, and at times there was a gravel path you could choose to ride on instead of the main bike path that seemed to be intact and not all over the place.
- In certain areas there are not a lot of trees and I feel that is because it allows you to take in the beautiful views of the San Francisco Bay as well as the timeless shot of the Golden Gate Bridge.

Multi-functionality/Activities (5)

- In the areas of Fisherman's Wharf you see tourist attractions as well as local fisherman at the docks doing their daily routine.
- When passing the parks along the way to the Golden Gate Bridge you see a lot of Sports games and activity going on. This waterfront area is very active during the day times especially on a Saturday morning.
- Throughout the path you can visit certain shops, places to eat, tourist attractions and landmarks.
- You can also stop anywhere on the path to get the famous view of the Golden Gate Bridge.
- This path is vibrant and a great attraction to experience in San Francisco. If you're looking for an outdoor adventure or an exercise, I highly recommend this bike path.


Cyclists SLOW!
FISHERMANS WHARF
SAN FRANCISCO

San Diego Exercise Path (Mission Beach/ La Jolla)

This was the last bike experience I had in California before I left for Hawaii. My friends and I made a trip down to San Diego from Los Angeles one Saturday to take spend a day in sunny San Diego. We rented bikes from one of the Bike Rentals on Mission Bay Boulevard and went on our merry way up north towards La Jolla. This bicycle path was one of the busiest paths to ride on. There were times where we needed to walk the bike due to too many on-comers, people strolling their kids, kids on the loose, skateboarders but mainly people walking. This path seemed like a tourist attraction and locals would know better but to stay off and avoid the chaos. Along this path there were rows and rows of beach houses that opened up right onto the path as well as restaurants and retail. This too is what made the path much busier, as compared to Santa Monica and San Francisco that separated the path and the street with landscaping. Every so often the pathway would open up to a lane or cul-de-sac that lead to the Mission Boulevard parallel to the bike path. After getting through the crowd, and onto the cliff area we took a break and decided if we were to go onto the La Jolla or trek back through the crowd. Since it was crowded and overwhelming for all of us we decided to trek onto La Jolla and venture down to Seal Beach to see the Sea Lions. The Bike ride through La Jolla was not part of the bicycle experience of Mission Beach but we created our own. To our surprise La Jolla was a pedestrian-friendly part of town with wide sidewalks and places to dock your bicycles, if you wanted to grab a bite to eat or make a pit stop. It was a cute, safe neighborhood filled with cute outdoor cafes and retail. From the bike rental to Seal Beach and back was a total of 12 miles! We all definitely got our exercise for the week. On this path I did not notice any signage and there were places to sit in certain areas and far from the Mission Beach hub. The atmosphere on the path was crowded and made us rethink going down that path again rather biking on Mission Boulevard where it was dangerous for pedestrians. Just as in Santa Monica you had a lot of beach volleyball games going on and many sun bathers. Pacific Beach Park was definitely the place to be on a hot Saturday afternoon. San Diego reminded me of home, it looked and felt just like Hawaii. Although it was crowded the San Diego Mission Beach Bicycle experience is one to experience if you have not for those timeless scenic views and get the first hand glance at the Californian beach culture.

I rate this bike path an overall = (3.5/5)

Connectivity and Continuity (4)

- For the most part the bike path connected well to the beach and to the streets that bridged a connection to Mission Boulevard. The Mission Beach path was not as long as the Santa Monica Bike Path or the San Francisco Bike Path but it was a great way to get out in the sun and do some exercising.
- The path was a straight shot and hardly had any winds and turns. Mission Beach bicycle path is roughly 3.7 miles long.

Accessibility (3)

- The path was accessible to the main Mission Boulevard that is connected by side streets. People from Mission Boulevard, the beach and La Jolla could easily access this bike path.
- The path was wide but not wide enough for the crowds in certain areas. At time it got tight and we found ourselves dodging people walking or jogging. Other than that it was accessible.

Identity (4)

- The path identified well with its surroundings of beach houses, cafes to eat in, retail vendors fronting the path and the sandy beaches. This path serves to connect people to all of these amenities and allows them to stroll down the beach and take in the views.

Safety (4)

- The path makes it safe for pedestrians to walk around, shop, eat and access the beach without being connected to the busy streets.
- Since the path is separated from the main road, people tend to gravitate to this area because it is pedestrian-friendly.
- This path also has light posts up and down that create a safer night time experience for someone wanting to take a stroll.
- The beach houses back yards open up to the path as well as the food and retail vendors, creating a vibrant place to walk.

Attractiveness (4)

- The path was attractive in a sense that it allowed for great views of the Beach area. The parts where there were expensive beach houses of all sorts were a nice part of the walk.
- I don't think there was ever a time I was disappointed on this bike path especially when we went through La Jolla to get to Seal Beach.
- I noticed that they San Diego bike path was clean (no trash on the ground) and nicely maintained when it came to their beach areas.

Multi-functionality/Activities (3)

- Just like Santa Monica, San Diego had a lot of volleyball games going on along the beach. Beach Volleyball seems like a big sport in Southern California.
- You had your surfers catching the breaks, the wind kite surfers, the sun bathers, the picnickers, the tourist riding bikes (us), locals walking or jogging the path, the eaters at the local cafes, the beach house parties going and much more.
- This bike path is surrounded by a lot of activity which makes it the place to be. I noticed more people on that path then the main Mission Boulevard a couple streets up.

Pearl Harbor Historic Exercise Path (Pearl Harbor/ Waipahu)

This walking path is located on the island of Oahu and part of the Honolulu Bicycle Plan headed by former Mayor Jeremy Harris. Although a local for decades, I have never walked on the bike path or knew it existed until a few years back. This bike path was recommended by a principal from Belt Collins (Architecture Landscaping firm in Hawaii) to check out this path if I have time, it could be used in my research. I decided to check out the path and took a friend with me (heard that it can get dangerous in some areas). We did not complete the entire 11 miles but started at Blaisdell Park in Aiea and walked down to Waipahu. Walking on this path, we got to pass by one of HEC stations, walk next to the H1 freeway, passed through Pearl City and into Waipahu where we could at times see nice views into Pearl Harbor. We were not alone all the time as there were many bicyclists soaring up and down the trail making sure to let us know they were there avoiding a collision. It seems neighborhoods use that path to get to other neighborhoods since we saw some school students walking on the path in certain areas. This path for the most part was run down and in great need of maintenance. There were many areas where it was dark and gloomy where we both could have been kidnapped. I noticed a lot of graffiti, not surprised since the path is secluded and off to the side. Being honest I thought the graffiti brought art and color to the area, although it's not as nice as Kaka'ako is now, but graffiti is way of expressing art even if it's considered vandalism. The path is not exciting and not attractive for the most part. The path did connect to local streets but half of the streets were neighborhoods you wouldn't want to be walking in. The path connects to Blaisdell Park and a Lehua Elementary school and the rest is straight bushes, low income neighborhoods or abandoned junk yards. There was signage at certain parts of the trail that told you where you were, what is around and how much miles you've done. The biggest downfall of this path is the grass bugs that fly in the air in huge groups. There must have been about 10 areas with this swarm of bugs that would get into our eyes, in our mouth and would dampen our experience. Unless I am riding a bike the next time, I have no desire to walk this path again. I feel that the Pearl Harbor Bike path had good intentions but it needs to be better maintained and designed to be safer and enjoyable for pedestrians.

I rate this bike path an overall =(1/5)

Connectivity and Continuity (3)

- The Pearl Harbor path was a continuous path of 11 miles.
- The path did connect Aiea with Pearl City and Waipahu but it was unattractive, unsafe and unaccessible.

Accessibility (1)

- Accessibility was poor on this path.
- Some of the path connected with low income neighborhoods, busy streets that weren't pedestrian-friendly and it would be a lengthy walk to get to the main road (Kamehameha Highway) from the trail.
- The trail only connects to a couple parks, a retail area near Best Buy and the rest residential.
- Parking is hard to find near the Stadium since there isn't a designated parking lot for this path. My friend and I decided to park at Blaisdell Park where it connects with the path.

Identity (1)

- The path identifies with its surrounding area. Let's face it the areas near the harbor are not the safest and nicest. The identity to Hawaii is poorly done.
- The path looks like a path that could be in other places around the world, it is not unique at all. There is no significance and relation to the culture of Hawaii.
- The landscape is terrible and shrubbery along most of the path is over grown. This path needs to be fixed and revitalized with a Hawaii sense of place in mind.

Safety (1)

- This trail was not safe at all. I would recommend going with a friend or two while doing this walk even if it is during the day.
- There were people loitering in certain parts of path in the Waipahu area. Given that the path is secluded and far away from any main road or call for help, I suggest walking with caution.
- There were some lighting lamp posts in certain areas but not many. Night time is not an option. It appeared to be a place for drug dealers or potential violence.

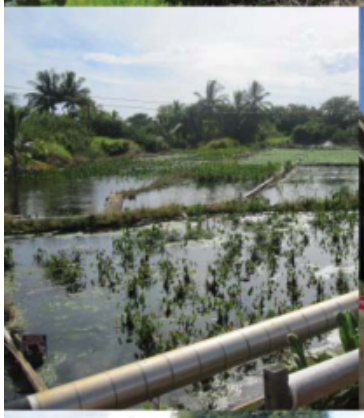
Attractiveness (1)

- The bicycle path was not attractive to the eye at all. Other than the stretch where HECO was, everywhere else on the walk was dirty, smelly and poorly maintained.
- It looks like maintenance workers clean every month or two. Trash is not picked up and grass is overgrown.
- This path needs a revitalization and better lighting.
- If the path were to look more inviting and safer, I am sure more people would gravitate towards this path and use it.
- You would pass by a couple junk yards and overgrown vegetated areas. The areas where it opened up to Pearl Harbor were the nicest parts of the walk.

Multi-functionality/Activities (2)

- This path is connected to Blaisdell Park where there are sport activities as well people barbequing and socializing.
- The path promotes walking, jogging, biking, etc.
- Some people don't know much about this path, given that it is hidden in the bushy areas by Pearl Harbor.
- This path could be popular area if it were designed better, attractive, safer and accessible to places.






LEHUA
FLEMENTARY SCHOOL



Summary

Looking back at these experiences, I noticed some paths had great signage, some were hard to navigate, some had seating options, some had information boards about historical sites along the path, while others had food vendors right up on front of the path. Each trail was different, unique and a great place to be. These paths are not just for tourist but for the locals that enjoy a brisk walk, training for a marathon, spending quality time with family, or taking a break from the hustle and bustle from the city. The California Bicycle paths allowed me see how vibrant and exciting a beach walk can be for a user, how much people use it and how pedestrian friendly the path and the surrounding areas are. Experiencing these different Exercise Paths has helped me to not only see how a successful exercise path looks like and what it provides for people but also of how it felt. Connectivity, continuity, accessibility, identity, safety, attractiveness and multi-functionality/activities all contribute to a great walkable path. Each place had a different feeling, whether good or bad, and designing great exercise paths is not only about making it looking pretty on paper or making connections but also to design for that sense of place you want people to experience and most importantly feel.

GREENWAYS CASE STUDIES

THE NEW YORK HIGH LINE – MANHATTAN, NEW YORK

The New York High Line is an elevated 1 mile long urban parkway built upon an old historic rail line that runs for 1.45 miles in the West Side of Manhattan. The High Line starts from Gansevoort Street in the Meatpacking District to West 34th Street, between 10th and 11th Avenues. The High Line is maintained, owned and operated by the "Friends of High Line," that was founded in 1999.[1] The first section of the High Line opened on June 9, 2009 (runs from Gansevoort Street to West 20th Street) and the second section opened on June 8, 2011 (runs between West 20th and West 30th Streets).[2] Friends of the High Line are currently raising money to preserve and transform the third and final section of the historic structure that runs between West 30th and West 34th Streets.

Image: The New York High Line.[3]

[1] Internet. "Park Information". High Line – The official Web site of the High Line and Friends of the High Line. C2000-2013. http://www.thehighline.org/about/maps

[2] Internet. "Park Information". High Line – The official Web site of the High Line and Friends of the High Line. C2000-2013. http://www.thehighline.org/about/maps

[3] Internet. Image. "The High Line of New York." Life Around Us. Powered by Blogger. April 24, 2012. http://lifeblog79.blogspot.com/2012/04/highline-park-of-new-york.html

The elevated railroad was part of the "West Side Improvement Project" that was instated by the State of New York and the New York Central Railroad in 1929 due to the hazards and traffic of the railroad tracks that were originally on-grade. It all started in the year 1847, when the City of New York authorized street-level tracks down the West Side of Manhattan and for safety reasons hired a group of men called the "West Side Boys" to ride horses and wave flags in front of the trains.[4] Even if safety precautions were taken there were a great number of casualties and accidents that had occurred with the freight trains and other traffic that 10th Avenue became known as "Death Avenue".[5] Following the many casualties and accidents in the area the Elevated Railroad was built which included the High Line today, that ran a total of 13 miles and eliminated a 105 street-level railroad crossings and added a 32 acres to Riverside Park.[6] The High Line opened for trains in 1934 and originally ran from 34th Street to St. John's Park Terminal at Spring Street.[7] The railroad was designed to go through the center of blocks rather than over the avenue, to avoid the drawbacks of elevated trains.[8] The railroads connected directly to the factories and warehouses, allowing the trains to roll right inside the buildings to make its drop offs.[9] Goods such as milk, meat, produce, raw and manufactured goods could be transported and unloaded without the disruption of traffic on the streets.[10] This solution also helped with theft in the area. In the 1950's interstate trucking led to a drop in the rail traffic throughout the nation and in 1960's the south end of the line was demolished.[11] In the mid 1980's a group of property owners with land under the railway wanted to take steps to demolish the entire structure.[12] Peter Obletz, a resident, activist and railroad enthusiast challenged the demolition efforts in court and tried to re-establish the railway which resulted in a decade of an unused elevated railway system that fell in disrepair.[13]

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[4]Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[5] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[6] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[7] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[8] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[9] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[10] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[11] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[12] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[13] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)

Image: Shot taken by Joel Sternfeld of the New York High Line when it was still abandoned. [14]

Image: New York City High Line today[15]

[14] Internet. Image. "The High Line of New York." Life Around Us. Powered by Blogger. April 24, 2012. http://lifeblog79.blogspot.com/2012/04/highline-park-of-new-york.html

[15] Internet. Image. Cilento, Karen. "The New York High Line Officially opened." Arch Daily. C2008-2013. June 9, 2009. http://www.archdaily.com/24362/the-new-york-high-line-officially-open/

During this time it was a playground for urban explorers and local residents for the tough, wild grasses, shrubs, and rugged trees that grew up on the gravel along the abandoned railway.[16] During Mayor Rudy Giuliani's Administration is when the High Line was pushed to get demolished once again.[17]

In 1999, community residents fought for the preservation and transformation at the time when the historic structure was under the threat of getting demolished and group was founded called "Friends of the High Line." The Friends of High Line is now a non-profit conservancy working with the New York City Department of Parks & Recreation to make sure the High Line is maintained as an extraordinary public space for all visitors to enjoy. In 2004 The Friends of High Line picked a design team by the name of James Corner Field Operations, a landscape architecture firm, Diller Scofidio + Renfro, an architecture firm along with experts on horticulture, engineering, security, maintenance, public art, and other disciplines.[18]

 [19]

Image: Rendering by Field Operations and Diller Scofidio + Renfro/ Courtesy the City of New York.

[16] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[17] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[18] Internet. "High Line History." High Line – The official Web site of the High Line and Friends of the High Line. C2000-2013. http://www.thehighline.org/about/high-line-history
[19] Internet. Image. Ouroussoff, Nicolai. "On the High Line, Solitude is pretty crowded." The New York Times. December 24, 2006. http://www.nytimes.com/2006/12/24/arts/design/24ouro.html

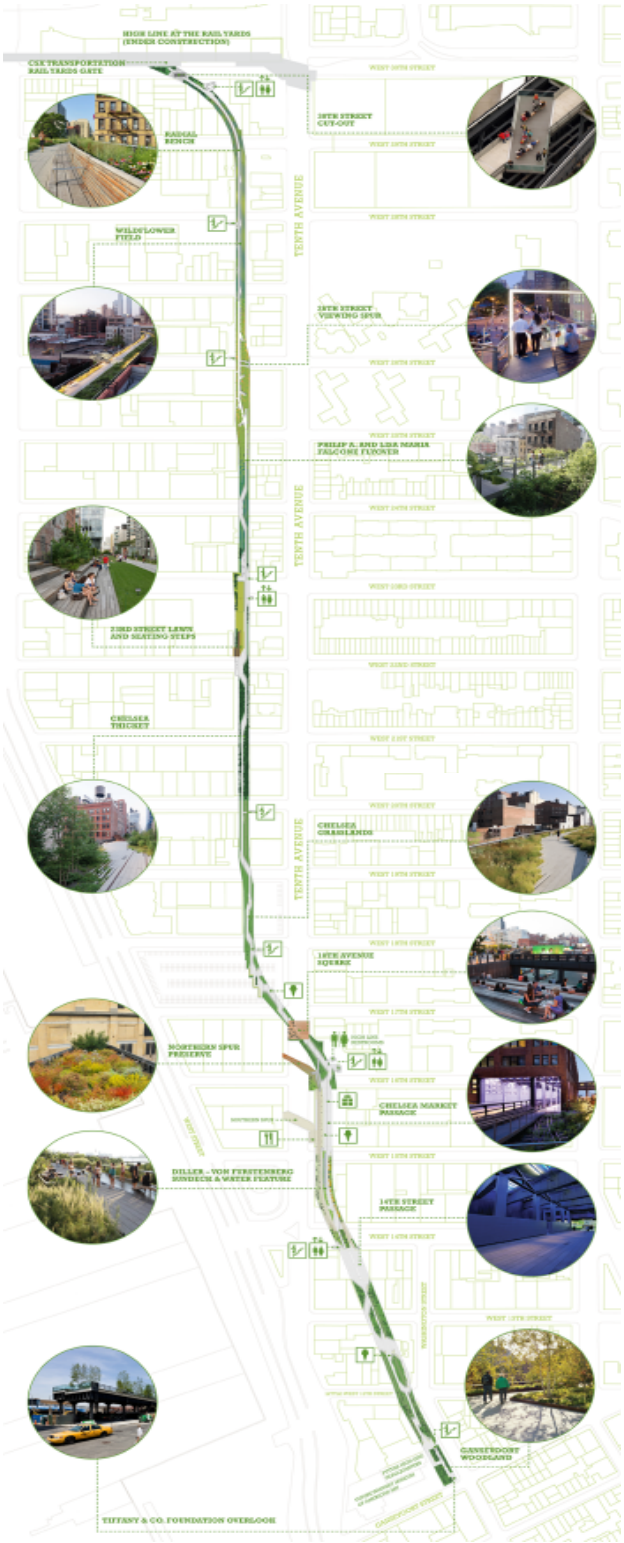

Figure: High Line, New York City[20]

[20] Internet. Image, High Line – The official Web site of the High Line and Friends of the High Line. C2000-2013. http://www.thehighline.org/about/maps

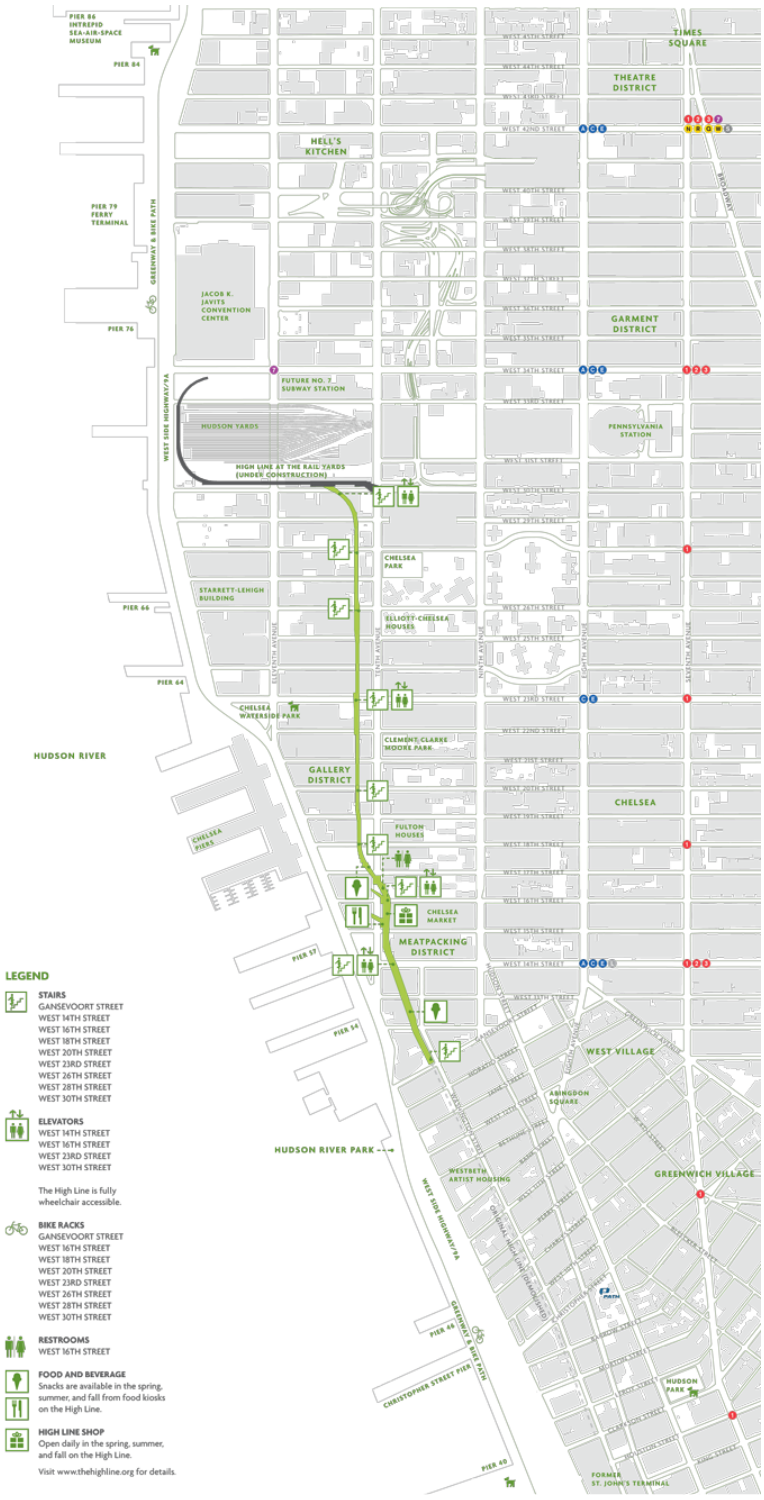

Figure: Neighborhood Context Map[21]

[21] Internet. Image. High Line – The official Web site of the High Line and Friends of the High Line. C2000-2013. http://www.thehighline.org/about/maps

The High Line attractions include plantings that are inspired by the self-seeded landscape that grew on top of the abandoned tracks, spectacular views of the city and Hudson River.[22] Most of the planting (120 different species of plants) had been taken from meadows in the surround area. Birch trees are a part of the landscape and provide ample shade in the afternoons for pedestrians. The build-in benches are unique since they are made up of Ipe timber from a managed forest certified by the Forest Stewardship Council, to ensure sustainable use and the conversation of biological diversity, water resources and fragile eco-systems.[23] The walkways are made up of pebble-dash concrete that unifies the trail that meanders down the path and also melds with the landscape that consists of planting embedded in the railroad gravel mulch.[24] Parts of the trail have the existing landscape of what grew on the abandoned railroad over the years as well as new plantings.[25] Portions of the track are adaptively re-used for rolling lounges positioned for viewing of the Hudson River.[26]

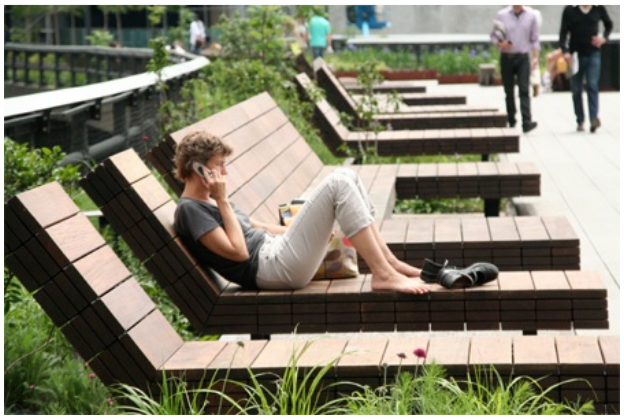

Image: Shot of a park user and the built in custom seating. Image: Landscaping on the New York High Line. [27][28]

[22] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[23] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[24] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[25] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[26] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[27] Internet. Image. "The High Line." Environmental Science and Technology of NYC. http://macaulay.cuny.edu/eportfolios/lewisf10/parks/the-high-line/
[28] Internet. Image. "The High Line: An elevated train track landscaped to the nines." Cherry Patter NYC c2009. June 5, 2009. http://cherrypatter.com/2009/06/the-high-line-an-elevated-train-track-landscaped-to-the-nines/

The High Line has cultural attractions as well as its integrated architecture and plant life.[29] As part of a long-term plan for the park to host temporary installations and performances of various kinds, Creative Time, Friends of the High Line, and the New York City Department of Parks and Recreation commissioned "The River That Flows Both Ways" by Spencer Flinch as the inaugural art installation.[30] An interesting aspect of one of the installation done by Spencer Flinch featured in the High Line is the work integrated into the window bays of the former Nabisco Factory loading dock area.[31] It is a series of 700 purple and grey colored glass panes and each color is exactly calibrated to match with the center pixel of 700 digital pictures, one take each minute of the Hudson River, therefore presenting an extended portrait of the river that gives the work its name.[32] In 2010, a sound installation was installed by Stephen Vitiello which composed of bells heard through New York.[33] Each installation is temporary and will continue to change with other artist through the years.

An increase of real estate development in the neighborhoods that surround the line since the urban park opened. According to the book "Walkable City: How Downtown can save America, One Step at a Time," Jeff Speck, mentioned how studies show that property value is greater where walkability is higher in a city compared to places where walkability is less. Crime has been extraordinary low since the park opened and shortly after the second phase was built; The New York Times reported that there have been no reports of major crimes since it opened.[34] Due to strict park rules and Park Enforcement Patrols it has turned a once run down neighborhood to a safe place where people want to be.[35] According to a writer talking about the High Line, "Empty Parks are dangerous" and "Busy Parks are much less so, you're virtually never alone on the High Line."[36] The High Line caters to the handicap and offers elevator transportation to 4 different spots amongst the elevated greenway.

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[29] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[30] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[31] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[32] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[33] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[34] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[35] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[36] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)

[37] Image: Showing the night time atmosphere of the High Line with adequate lighting.

[38] Image: Conceptual model of the High Line done by James Corner and team.

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[37] Internet. Image. Keller, Jared. "First Drafts: James Corner's High Line Park." The Atlantic. C2013. July 5,2011. http://www.theatlantic.com/entertainment/archive/2011/07/first-drafts-james-corners-high-line-park/240695/

[38] Internet. Image. Keller, Jared. "First Drafts: James Corner's High Line Park." The Atlantic. C2013. July 5,2011. http://www.theatlantic.com/entertainment/archive/2011/07/first-drafts-james-corners-high-line-park/240695/

James Corner was the mastermind behind the High Line and is the principal to his firm and practices in landscape architecture. According to James Corner, "Designing a good public space enhances the economic value of everything around it." He goes onto to say that High Line is about transforming something that is negative into something positive. Paths, seating, trash areas, lighting, water features, all are elements that are generous, safe, secure place for people. Corner talked about how the High Line is like a secret magic garden in the sky. Corner says that the High Line is like an amazing sub session of episodes and the choreography of that and experience of that for him are the most exciting and original part of it all. Corner also goes onto mention that "The High Line is not easily replicable in other cities," observing that building a "cool park" requires a "framework" of neighborhoods around it in order to succeed.[39]

Image: Viewing Corridors on the High Line. [40]

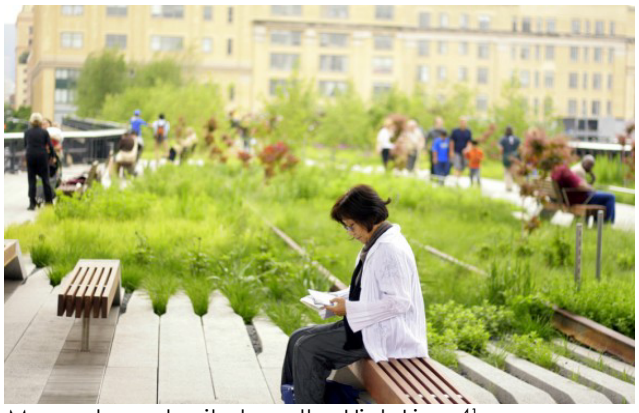

Image: Many places to sit along the High Line. [41]

Image: Crafted seating. [42]

Image: Viewing corridors from the High Line. [43]

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[39] Wikipedia. Image. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)

[40] Internet. Image, Handriansyah, Ardi. "Piece of Mind High Line Part Deux Created by James Corner." Granddown Modern Architecture. June 14, 2011. http://www.granddown.com/piece-of-mind-high-line-part-deux-created-by-james-corner

[41] Internet. Image. "Pictures of High Line Park, New York City." House and Gardening Addicts. July 22, 2010. http://houseandgardenningaddicts.wordpress.com/2010/07/22/high-line-park-new-yorks-floating-green-railway-park/

The Residents that live close by or next to the High Line seem to have adapted to the Walkable Greenway and for the most part their responses are positive.[44] Due to the high popularity of the High Line, there have been several proposals for museums along the High Line.[45] The Whitney Museum plans to build on the site, with a design by Renzo Piano (famous Architect).[46] Today the New York City High Line remains a model in landscaped railroad design and has inspired other cities such as Chicago, Philadelphia and St. Louis to reinvent their railroad areas too. It costs less to redevelop and abandoned urban rail line into a linear park than to demolish it.[47] High Line has inspired New York City to continue this railroad design in other parts of the city such as the "Queens Way" located in Queens that is being considered for a reactivation along the right-of-way of the former LIRR Rockaway Beach Branch.[48] New York High Line has the last Section 3 of the greenway in the design process and will be open to public in the coming years.[49]

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[42] Internet. Image. "Images of New York City." Iain Masterson Photography. http://iainmasterton.photoshelter.com/gallery/Images-of-New-York-City/G0000Lt9NTzK8I1I/
[43] Internet. Image. "Pictures of High Line Park, New York City." House and Gardening Addicts. July 22, 2010. http://houseandgardenningaddicts.wordpress.com/2010/07/22/high-line-park-new-yorks-floating-green-railway-park/
[44] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[45] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[46] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[47] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[48] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[49] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[50] http://www.archdaily.com/tag/james-corner-field-operations/

Connectivity and Continuity

The New York High Line is a 1 mile linear park built on a 1.45 mile section of the historical New York Central Railroad, called the West Side Line.[51] This line runs along the lower west side of Manhattan and has been re-designed as an elevated greenway.[52] The High Line currently runs from Gansevoort Street north to 30th Street where the elevated tracks turn west around the Hudson Yards development project to the Javits Convention Center on 34th Street.[53] The High Line helps to connect the places in the West Side District in safe, comfortable environment, disconnected from the busy roads below.[54]

Accessibility

The New York High Line can be reached through nine entrances and four entrances that are accessible for people with disabilities.[55] The High Line allows better access to view corridors that can't be seen from the street level well.

Identity

The High Line runs through three of Manhattan's most dynamic neighborhoods: the Meatpacking District, West Chelsea and Hell's Kitchen/Clinton.[56] When the High Line was built in the 1930's these neighborhoods were dominated by industrial and transportation uses.[57] Now many of the existing warehouses and factories have been converted to art galleries, design studios, retailer's restaurants, museums, and residences.[58] The New York High Line has helped to create an identity for Manhattan's West side and revitalized the historic run down area into a functional elevated walkable greenway that connects parts of West Manhattan's neighborhood together. By the High Line preserving the existing elevated rail line it represents a symbol of what the neighborhood once was. The High Line is now inspiration to other projects in the U.S and another project up and coming in another part of Manhattan due to its success. It

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[51] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[52] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[53] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[54] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[55] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[56] Internet. "Neighborhood Info." High Line – The official Web site of the High Line and Friends of the High Line. C2000-2013. http://www.thehighline.org/about/neighborhood-info
[57] Internet. "Neighborhood Info." High Line – The official Web site of the High Line and Friends of the High Line. C2000-2013. http://www.thehighline.org/about/neighborhood-info
[58] Internet. "Neighborhood Info." High Line – The official Web site of the High Line and Friends of the High Line. C2000-2013. http://www.thehighline.org/about/neighborhood-info

represents, the past, the present and the future and helped to reshape the image of the west side of Manhattan.

Safety

According to the New York Times, since the second section of the New York High Line was completed there have been no major reported crimes such as assaults or robberies since the High Line has opened.[59] Due to the strict rules of the High Line, crimes have been extraordinarily low in the park.[60] The Park's Enforcement Patrols written summonses for various infractions of park rules, such as walking dogs or bicycling on the walkway.[61] Park advocates attributed that to the high visibility of the High Line from the surrounding buildings, a design feature inspired by the writings of urbanist Jane Jacobs.[62] "Empty parks are dangerous."[63] The landscape architect of the project told the press "Busy parks are much less so. You're virtually never alone on the High Line."[64] Here are the High Lines Park Rules that everyone must follow:

Park rules prohibit:

- Walking on rail tracks, gravel, or plants
- Picking flowers or plants
- Throwing objects
- Sitting on railings or climbing on any part of the High Line
- Bicycles
- Use of skateboards, skates, or recreational scooters
- Amplified sound, except by permit
- Solicitation
- Commercial activity, except by permit or otherwise authorized
- Littering
- Obstructing entrances or paths
- Drinking alcohol, except in authorized areas
- Film or photography requiring equipment or exclusive use of an area, except by permit
- Events or gatherings greater than 20 persons, except by permit
- Smoking

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[59] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[60] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[61] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[62] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[63] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)
[64] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)

Dogs not permitted

Dogs are not allowed on the High Line due to the limited area of the pathways and the fragility of the plantings.[65]

Attractiveness

The High Line was once a rusty, abandoned elevated rail line that was to be torn down by the city. Luckily, it was saved and turned into something that no one could have imagined. The New York High Line is a retrofitted, elevated greenway that serves as a connection throughout the neighborhood and a walkable pathway for residents, visitors to enjoy views of the surrounding areas, recreation, landscaping, and the culture of the West Manhattan District. The High Line also has about 120 different species of plants that creates a "park" feel while walking through the greenway.

Multi-functionality/Activities

The New York High Line attractions include naturalized plantings (that inspire the self-seeded landscape that grew on the abandoned tracks before it was retrofitted) and unexpected views of the city and the Hudson River.[66] The pebble dash concrete walkways unify the trail that swells and constricts, swinging side to side and divides into concrete lines that meld the hardscape with the planting embedded in the railroad gravel mulch.[67] Most of the planting (120 species) is rugged meadow plants that are mainly American natives.[68] There are trees that help to shade the High Line and rolling lounges positioned for river views.[69] There are also cultural attractions as well as integrated architecture and plant life.[70] The park hosts temporary installations and performances of various kinds, Creative Time, Friends of the High Line. And the New York City Department of Parks and Recreation commissioned "The River That Flows Both Ways" by Spencer Finch as the inaugural art installation.[71] There are no recreational sports on this greenway nor are there bicycles or skateboards of any sort allowed on the High Line.

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[65] Internet. "Park Information." High Line – The official Web site of the High Line and Friends of the High Line. C2000-2013. http://www.thehighline.org/about/park-information

[66] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)

[67] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)

[68] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)

[69] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)

[70] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)

[71] Wikipedia. "High Line (New York City)." Wikipedia Foundation, INC. Last modified: September 9, 2013. http://en.wikipedia.org/wiki/High_Line_(New_York_City)

WHAT IS WALKABILITY?

Walkability is a measure of how friendly an area is for walking.[1] It is also defined as the extent to which the built environment is friendly to the presence of people living, shopping, visiting, enjoying, or spending time in an area.[2] Wakability has much health, environmental and economic benefits for communities.[3]

Image: Times Square, New York City. [4]

[1] Wikipedia. "Greenways (landscape)." Wikipedia Foundation, INC. Last modified: July 11, 2013. http://en.wikipedia.org/wiki/Walkable_community
[2] Wikipedia. "Greenways (landscape)." Wikipedia Foundation, INC. Last modified: July 11, 2013. http://en.wikipedia.org/wiki/Walkable_community
[3] Wikipedia. "Greenways (landscape)." Wikipedia Foundation, INC. Last modified: July 11, 2013. http://en.wikipedia.org/wiki/Walkable_community
[4] Internet. Image. Falk, Tyler. "Top 10 Most Walkable Cities in the U.S." Smart Planet. CBS Interactive Inc. July 22, 2011. http://www.smartplanet.com/blog/cities/top-10-most-walkable-cities-in-the-us/640

According to Jeff Speck a famous city planner that wrote one of many books called "Walkable City: How Downtown can save America, one step at a time," walkability is an end and a means, as well as a measure.[5] While the physical and social rewards of walking are many, walkability is perhaps most useful as it contributes to urban vitality and most meaningful as an indicator of that vitality.[6] Specks goes on to say that after several decades spent on redesigning pieces of cities, trying to make them more livable and more successful, he had noticed how his own focus narrowed towards walkability as the one use that seems to both influence and embody most of the others.[7] "Get walkability right and so much of the rest will follow".[8]

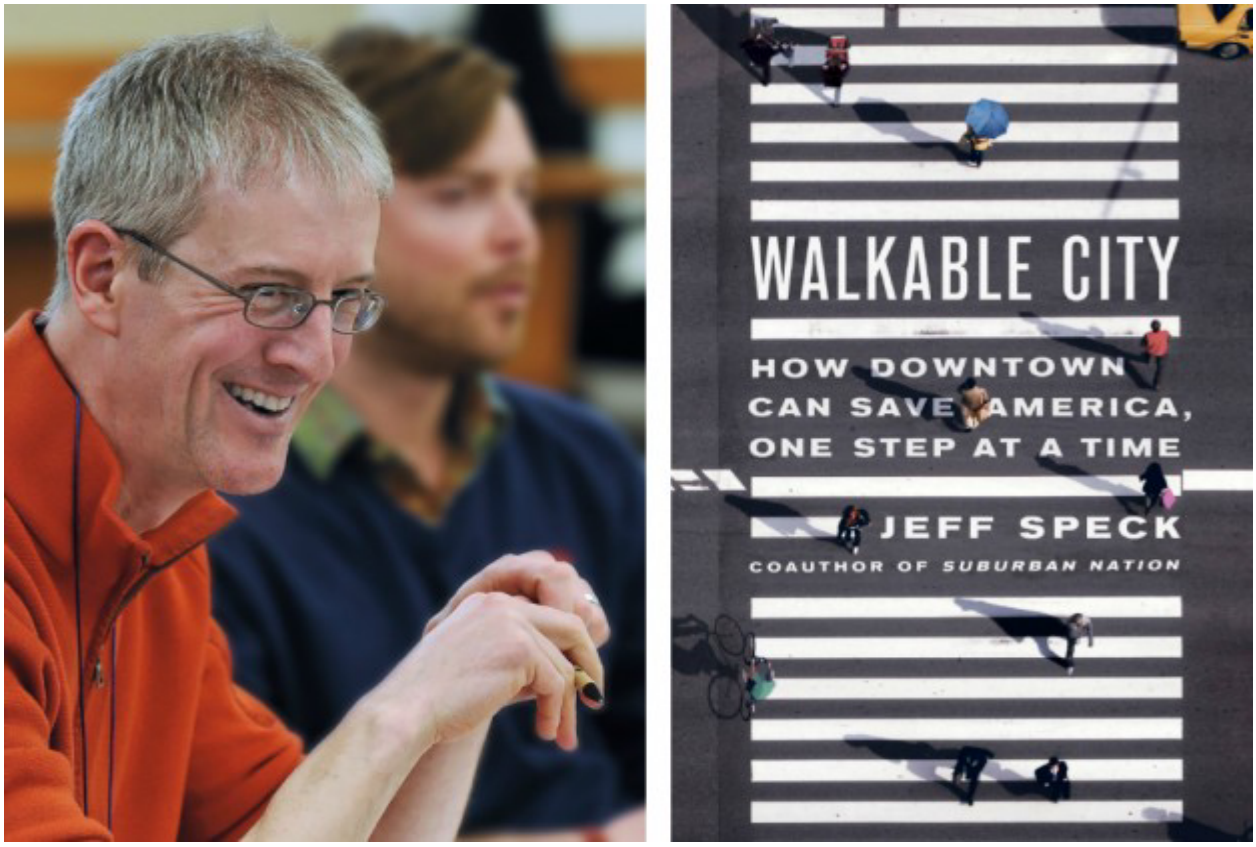

Image: Jeff Speck and his Book called "Walkable City." [9]

[5] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 4.
[6] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 4.
[7] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 4.
[8] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 4.
[9] Internet. Image. "Why Walkability is Key to a City's Vitality." Radio Boston. http://radioboston.wbur.org/2013/07/05/why-walkability-is-key-to-a-citys-vitality

Since the midcentury, most American cities have effectively become no-walking zones.[10] The need for "smooth traffic" and "ample parking," has turned our downtowns into places that are easy to get to but not worth going or staying.[11] Outdated zoning and building codes, often imported from the suburbs, have matched the uninviting streetscape with equally antisocial private buildings, completing a public realm that is un-safe, uncomfortable, and just plain boring.[12] American cities needs more comprehensive collection of simple design fixes that can reverse decades of counterproductive policies and practices and usher in a new era of street life in American.[13] These simple fixes give pedestrians a fighting chance, while also embracing bikes, enhancing transit, and making downtown living attractive to a broader range of people.[14] Most of these solutions are not expensive; some require more than just yellow paint here and there. [15] Each one individually makes a difference; collectively, they can transform a city and the lives of its residents.[16]

Image: Walkable City.[17]

[10] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 4.
[11] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 4.
[12] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 4.
[13] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 5.
[14] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 5.
[15] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 5.
[16] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 5.
[17] Internet. Image. "What Makes a City Walkable and why it Matters." Boston NPR's News Station. November 17, 2012.http://www.wbur.org/npr/165239291/what-makes-a-city-walkable-and-why-it-matters?ft=3&f=165239291

In the book "Walkable Cities: How Downtown can save America, one step at a time," Jeff Speck had brought a general "Theory of Walkability" that explains how a walk has to satisfy four main conditions in order for it to be considered walkable.[18] A walk has to satisfy four main conditions:

Useful – most aspects of daily life are located close at hand and organized in a way that walking serves them well.
Safe – they street has been designed to give pedestrians a fighting chance against being hit by automobiles, they must not only be safe but feel safe
Comfortable – buildings and landscape shape urban streets into "outdoor living rooms" in contrast to wide-open spaces, which usually fail to attract pedestrians.
Interesting – sidewalks are lined by unique buildings with friendly faces and that signs of humanity around.[19]

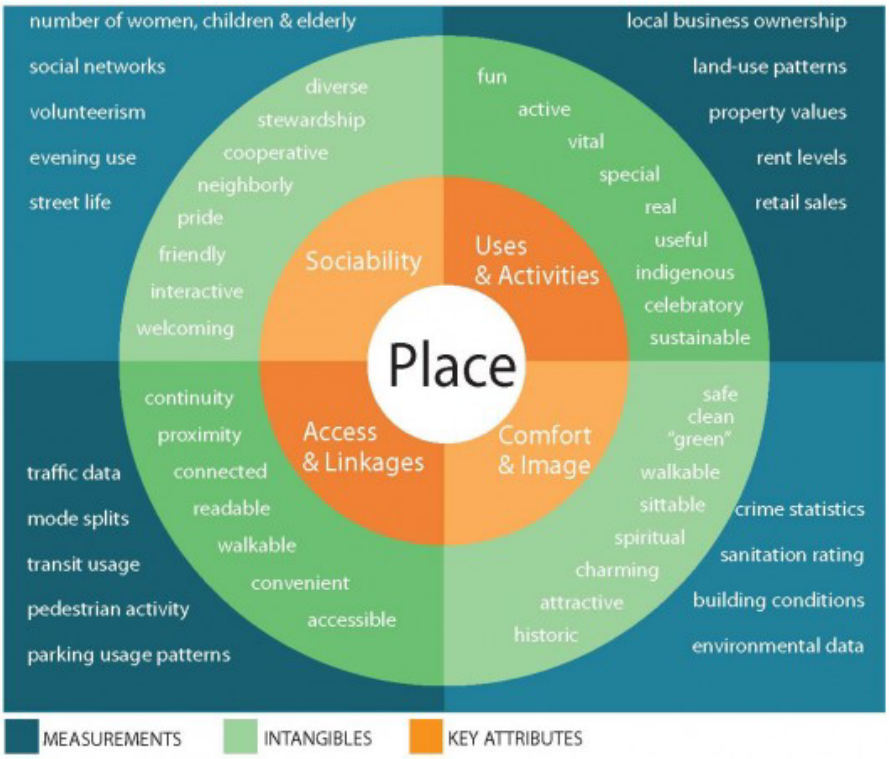

Diagram: PPS's matrix for evaluating the success or place-making in the commons. "The Place Diagram." [20]

[18] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 11.
[19] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 11.
[20] Internet. Image. "What Makes a Successful Place?" PPS: Project for Public Spaces. http://www.pps.org/reference/grplacefeat/

THE TEN STEPS TO WALKABILITY:

Step 1: Put Cars in Their Place.

The automobile is a servant that has become a master. For sixty years, it has been the dominant factor in the shaping of our cities. Regulating the car to its proper role is essential to reclaiming our cities for pedestrians, and doing so requires an understanding of how the car and its minions have unnecessarily distorted the way that design decisions are made in American communities.

Step 2: Mix the Uses.

For people to choose to walk, the walk must serve some purpose. In planning terms, that goal is achieved through mixed use or, more accurately, placing the proper balance of activities within walking distance of each other. While there are exceptions, most downtowns have an imbalance of uses that can be overcome only by increasing the housing supply.

Step 3: Get the Parking Right.

As Andres Duany puts it, "parking is density." It is the not-so-hidden force determining the life or death of many a downtown. Parking requirements and pricing determined the dispositions of more urban land nationwide than any other factor, yet until recently there was not even any theory exists, and is just beginning to affect policy nationwide.

Step 4: Let Transit Work

Walkable neighborhoods can thrive in the absence of transit, but walkable cities rely on it utterly. Communities that hope to become the latter must make transit-planning decisions based upon a number of factors that are routinely neglected. These include the often surprising public support for transit investment, the role of transit in the creation of real estate value, and the importance of design in the success or failure of transit systems.

Step 5: Protect the Pedestrian

This is perhaps the most straightforward of the ten steps, but it also has the most moving parts, including block size, lane width, turning motions, direction of flow, signalization, roadway geometry, and a number of other factors that all determine a car's speed and a pedestrian's likelihood of getting hit. Most streets in most American cities get at least half of these things wrong.

Step 6: Welcome Bikes

Walkable cities are also bikeable cities, because bicycles thrive in environments that support pedestrians and also because bikeability makes driving less necessary. More and more American cities are making big investments in bicycling, with impressive results.

Step 7: Shape the Spaces

Perhaps the most counterintuitive discussion in planning. This may be the step that is most often gotten wrong. People enjoy open spaces and the great outdoors. But people also enjoy, and need, a sense of enclosure to feel comfortable as pedestrians. Public spaces are only as good as their edges, and too much gray or green-parking or parks- can cause a would-be walker to stay home.

Step 8: Plant Trees

Like transit, most cities know that trees are good, but few are willing to pay properly for them. This step attempts to communicate the fill value of trees and justifying the great investment that they deserve in almost every American city.

Step 9: Make Friendly and Unique Faces

If evidence is to be believed, lively streetscapes have three main enemies: parking lots. Drugstores, and star architects. All three seem to favor blank walls, repetition, and a disregard for the pedestrian's need to be entertained. City design codes, focused on use, bulk, and parking, have only begun to concern themselves with creating active facades that invite walking.

Step 10: Pick your Winners

With the possible exception of Venice, even the most walkable cities are not universally walkable: there are only so many interesting street edges to go around. As a result, however well design the streets; certain among them will remain principally automotive. This is as it should be, but cities must make a conscious choice about the size and location of their walkable cores, to avoid squandering walkability resources in areas that will never invite pedestrians.[21]

[21] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 71-72.

According to Jeff Speck, these four conditions are mostly a way of thinking about a series of specific rules that are further organized into what he created "the Ten Steps of Walkability."[22] With both "The Theory of Walkability" and "the Ten Steps of Walkability," Jeff Speck's believes that they add up to a complete prescription for making our cities more walkable.[23] Learning the "Theory of Walkability" from Jeff Speck's creates guidelines as to what a walkable path should be useful, safe, comfortable and interesting. If the "Lei of Green" were to have all 4 of those aspects taken into consideration with its design, the pathways systems will be successful as a greenway and as a connector for the city of Honolulu. The "ten steps of walkability" can help to form criteria for the design proposal of the Lei of Green. Each step was important and vital to creating a walkable pathway in a walkable community. The following passages are parts of an interview with Jeff Speck:

On the benefit of urban environments

"But what happened in the last decade is that these other groups who get a lot more attention — doctors, economists, scientists — have begun to realize that the traditional neighborhood and particularly urban neighborhoods are much more sustainable environmentally, much more successful economically, and much, much better for us in terms of our health."[24]

On walking as a choice

"I think the main point to be made is that in most American cities, walking will remain a choice. For many years, I think, into the future, driving will remain cheap enough and parking will remain cheap enough. And what we're trying to create is pedestrians by choice. And what that means is that the walk has to truly be useful, it has to be safe, it has to be comfortable, and it has to be interesting. ... Useful means essentially having the proper balance of use in your communities."[25]

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[22] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 11.
[23] Speck, Jeff. "Walkable City: How Downtown can save America, one step at a time." Farrar, Straus and Giroux, New York. C2012. Page 11.
[24] Internet. "What Makes a City Walkable and why it Matters." Boston NPR's News Station. November 17, 2012.http://www.wbur.org/npr/165239291/what-makes-a-city-walkable-and-why-it-matters?ft=3&f=165239291
[25] Internet. "What Makes a City Walkable and why it Matters." Boston NPR's News Station. November 17, 2012.http://www.wbur.org/npr/165239291/what-makes-a-city-walkable-and-why-it-matters?ft=3&f=165239291

WALKABILITY + HONOLULU

According to Walk Score a website (and iPhone App) that rates the walkability of any address in the U.S, New York City ranked the best city to get around without a car.[26] The Top Ten Walkable Cities that were ranked with Walk Score comes to no surprise with places such as San Francisco, Boston, Chicago, Seattle, Washington D.C, Miami and much more. Notice that not all of these cities are the most iconic or vibrant cities out there but they hold top rank in the U.S. Cities like Kansas City, Indianapolis and Oklahoma City came out on the bottom of list that is least walkable. When typing in Honolulu to the Walk Score iPhone App, Honolulu Hawaii gets a score of 95%. Shocking, but that puts Honolulu Hawaii in the higher end of the totem pole. The walkability rating is based on how close an address is to amenities such as restaurants, grocery stores, schools and more.[27] Walk Score has become popular amongst realtor's looking to take advantage of the growing population that wants to live in vibrant communities where they can easily get to places by foot.[28] When looking at the map of the area where Walk Score evaluated and rated Honolulu, it seemed to cover parts of China Town, all of Downtown Honolulu and the Capitol District. In these particular areas, walkability is greater than most places even our own tourist destination, Waikiki with a total score of 68%. But what about areas such as Kakaako, Ala Moana that are too apart of Honolulu's area scope? I then went on the Walk Score App and punched specific areas located in Honolulu and got these results:

Downtown	88%	(Most walkable neighborhood in Honolulu with – 13,297 residents)
Kaka'aka	92%	(2nd most walkable neighborhood in Honolulu with – 17,075 residents)
Ala Moana	89%	(2nd most walkable neighborhood in Honolulu with - 17,075 residents)
Mc Cully	91%	(4th most walkable neighborhood in Honolulu with – 27,447 residents)
Mō'ili'ili	88%	(4th most walkable neighborhood in Honolulu with – 27,447 residents)
Mānoa	56%	(10th most walkable neighborhood in Honolulu with – 23,333 residents)
Kapahulu	71%	(7th most walkable neighborhood in Honolulu with – 20,336 residents)
Diamond Head	32%	(7th most walkable neighborhood in Honolulu with – 20,336 residents)

[26] Internet. Falk, Tyler. "Top 10 Most Walkable Cities in the U.S." Smart Planet. CBS Interactive Inc. July 22, 2011. http://www.smartplanet.com/blog/cities/top-10-most-walkable-cities-in-the-us/640
[27] Internet. Falk, Tyler. "Top 10 Most Walkable Cities in the U.S." Smart Planet. CBS Interactive Inc. July 22, 2011. http://www.smartplanet.com/blog/cities/top-10-most-walkable-cities-in-the-us/640
[28] Internet. Falk, Tyler. "Top 10 Most Walkable Cities in the U.S." Smart Planet. CBS Interactive Inc. July 22, 2011. http://www.smartplanet.com/blog/cities/top-10-most-walkable-cities-in-the-us/640

Looking at the Data from Walk Score, it's seems the walkability score gets less and less as you move away from Downtown Honolulu. This makes sense as Downtown is a business and work district with scarce parking and a lot of shopping and places to eat for the convenience of the people that work in the area on the weekday. When it becomes night time or during the weekends, downtown is a slow area with less people walking around. When you get to places such as Manoa and Diamond Head you tend to see a drop of walkability due to the fact that these areas are farther away from the hustle and bustle and that they are residential areas. These areas to have their own grocery stores and shopping areas but the walkability to other amenities is lesser than if you were to live in town where more so everything is. When you get to the outskirts of Honolulu in the residential areas the population increases. This shows that people tend to want to live in the suburban areas far away from the downtown where it is known to some as chaotic and congested. Downtown has the least amount of population due to the fact that most of the high rises are for businesses not for residential. Oddly, the more walkable a place is the less the population is for that area in Hawaii. I then decided to take the scores of specific areas along the "Lei of Green" proposed plan:

Kapi'olani Park	58%	Diamond Head Neighborhood – Transit Score: 57% - Bike Score – 50%
Ala Moana Park	71%	Ala Moana/ Kakaako Neighborhood – Transit Score: 77% - Bike Score – 64%
Kaka'ako Park	82%	Ala Moana/ Kakaako Neighborhood – Transit Score: 77% - Bike Score – 64%
Ala Wai Park	83%	Mc Cully/ Mo ili ili Neighborhood – Transit Score: 69% - Bike Score – 63%
UH Manoa	68%	Manoa Neighborhood – Transit Score: 43% - Bike Score – 43%
Aloha Tower	86%	Downtown Neighborhood – Transit Score 78% - Bike Score – 58%

Using the information above gives a better understanding of where the park, school or shopping area is in proximity to transportation and biking. Using this information I can better assess the areas that the "Lei of Green" path should pass through, creating a solution to the walkability of those areas. Again, the further you get away from Downtown Honolulu the smaller the percentage will be and it seems the same for transportation and biking. According to Jeff Speck's the more walkable the area the more desirable it is to live.

Walk Score is a handy site that allows you to find out what is near to you, different transportation choices you can take and local insight whether it be information on crime in the area, photos of places within the area, recommendations on great places to eat, shop, etc. Walk Score also gives the scores for Transit and for Bikes.

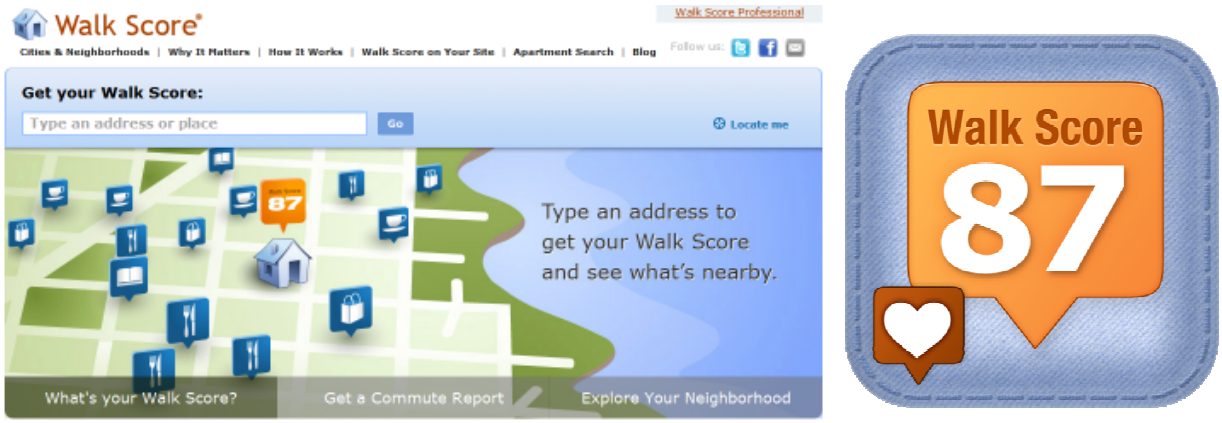

Diagram: Shows Walk Scores website and the iPhone App Icon[29]

Image: Bike Score Feature[30] and the iPhone APP[31]

By Using Walk Score, I was able to find out information on the different areas that I interested in having the "Lei of Green" concept pass through. This data helped to get percentages on the walkability, transportation, biking and population in the area that has helped me see what areas needs better connections and accessibility improvements and what areas would benefit from

[29] Internet. Image. Cook, John. "Walk Score Propels forward with $2 million, promises commutes don't suck." Geek Wire. January 13, 2012. Word Press. C21013. http://www.geekwire.com/2012/walk-score-propels-2m/
[30] Internet. Image. Goodyear, Sarah. "Walk Score Launches Bike Score." The Atlantic Cities: Place Matters. The Atlantic Monthly Group. C2013. May 14, 2012.
http://www.theatlanticcities.com/commute/2012/05/walk-score-launches-bike-score/1994/
[31] Internet. Image. Herst, Josh. "Walk Score gives Local Experts a Voice." Walk Score. C2013. September 25, 2012.
http://blog.walkscore.com/2012/09/walk-score-gives-local-experts-a-voice/

the "Lei of Green". Hawaii may not have the top score in the Nation but it seems to be on the higher end when it comes to other cities. Even if places such as Honolulu that ranks a solid 95% in walkability, Honolulu streets and main roads don't seem to be safe, welcoming and attractive in certain areas. Near the waterfront of Honolulu where Ala Moana Boulevard connects Aloha Tower to Ala Moana Shopping Center, there lies a long hot walk, with un-safe sidewalks, no bike lanes, barely any landscaping, no attractions and a deserted area, not at all for pedestrians. If Honolulu can pull a 95% with these conditions, what can Honolulu rank if improvements were made to our major streets and sidewalks? Can Honolulu become a ranking Walkable City along with New York, Chicago, and Seattle?

So what type of scores are New York City and Seattle getting?

New York City	**98%**
Seattle	**98%**
Chicago	**100%**
Washington D.C	**100%**

In order to create a plan in improving walking conditions for Honolulu, one would need to find out what makes a Walkable City, what are characteristics, benefits and challenges of creating a walkable city? Learning about walkability can help with design guidelines for the "Lei of Green" project I am proposing for the City of Honolulu.